

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 1/31/2017		2. REPORT TYPE FINAL		3. DATES COVERED (From - To) 8/15/2016 - 2/14/2017	
4. TITLE AND SUBTITLE 2016 International Workshop on Nitride Semiconductors (IWN 2016)				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER N00014-16-1-2845	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Dr. Tomas Palacios, MIT				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Materials Research Society 506 Keystone Dr Warrendale PA 15086-7537				8. PERFORMING ORGANIZATION REPORT NUMBER  IWN 2016	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) ONR 230 S Dearborn Rm 380 Chicago IL 60604-1595				10. SPONSOR/MONITOR'S ACRONYM(S) ONR	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT  No restriction					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The primary goal of this workshop was the promotion of science by providing a forum for exchange of knowledge among scientists and engineers working in the field of III-nitride semiconductor materials and devices. IWN 2016 was the year's prime forum for research results in this fascinating material system.  ONR funding support allowed the conference to offer a reduced registration fee for student participants, who gained exposure to the new advances in semiconductor growth, fabrication technology, device physics, and entrepreneurship in electronics and optoelectronics. The timing of this workshop was perfect for this generation of students to learn how the new science and technology of semiconductors is developing. In addition, the Workshop also featured for the first time a short 4-hour courses focused on important topics of III-N research, including advanced material characterization, GaN-on-Si devices, and power electronics. These lessons will be useful beyond semiconductor research, as these students will be able to apply them to any future new materials and technologies that they will encounter during their career.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF: N/A			17. LIMITATION OF ABSTRACT  None	18. NUMBER OF PAGES  39	19a. NAME OF RESPONSIBLE PERSON Donna J. Gillespie
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (include area code) 724-779-2732

# **FINAL REPORT**

## **2016 International Workshop on Nitride Semiconductors**

**Award No.:** N00014-16-1-2845

*P.I.- Prof. Tomás Palacios*

Department of Electrical Engineering and Computer Science  
Massachusetts Institute of Technology

### **Submitted to:**

Dr. Paul Maki  
Office of Naval Research

### **Contact information:**

Email: [tpalacios@mit.edu](mailto:tpalacios@mit.edu)  
Phone : +1 (617) 893 3586

January 2017

## 2016 International Workshop on Nitride Semiconductors

*P.I.- Prof. Tomás Palacios*

Department of Electrical Engineering and Computer Science  
Massachusetts Institute of Technology

### Summary

Nitride-based semiconductors are among the most promising materials for the next generation of electronic and optoelectronic applications. Through this project, ONR supported the organization of the 2016 International Workshop on Nitride Semiconductors (IWN). Thanks to the ONR funding, we were able to reduce the registration cost of 26 graduate students who attended this Conference. This support allowed the student participants to gain exposure to the new concepts of gallium nitride materials and devices.

### 2017 IWN

Nobel laureate Prof. I. Akasaki started the International Workshop on Nitride Semiconductors (IWN) and it is the preeminent international conference in the field of III-Nitride semiconductors. The conference is truly international with more than 33 countries represented in the 2016 edition. All types of research institutions (academia, government research institutes and industrial laboratories) are represented.

United States	189	Germany	89
Canada	8	United Kingdom	51
Mexico	3	France	41
Bahamas	1	Poland	32
		Switzerland	11
Japan	124	Spain	9
China	65	Sweden	9
South Korea	59	Ireland	5
India	23	Italy	5
Taiwan	11	Lithuania	5
Saudi Arabia	10	Slovakia	3
Singapore	8	Finland	2
Hong Kong	5	Albania	1
Israel	3	Belgium	1
Malaysia	2	Brazil	1
Russian Federation	2	Denmark	1
Qatar	1	Netherlands	1

Figure 1. Number of accepted papers per country.



According to their guiding principles, the International Advisory Committee (IAC) tasks suitable workshop organizers with the duty to organize, arrange, and execute the workshop every two years in alternating locations of its



**Figure 2. Plenary session of the IWN 2016.**

constituency, currently distinguishing, Asia, Europe and North America. Along those principles, workshops have been held: 2000 Nagoya (K. Kishino and S. Sakai); 2002 Aachen (H. Lueth, A. Hoffmann, and B.K. Meyer); 2004 Pittsburgh, (R.M. Feenstra and T.H. Myers); 2006 Kyoto, Japan (Y. Nanishi and H. Amano); 2008 Montreux, Switzerland (N. Grandjean and M. Ilegems); 2010 Tampa, USA (Christian Wetzel and Asif Khan); 2012, Sapporo, Japan (H. Amano and Y. Kawakami); 2014 Wroclaw, Poland (T. Suski and D. Hommel).

The IAC charged Prof. Alan Doolittle and Prof. Tomás Palacios as chairs to organize, arrange and execute IWN 2016 on the East coast of the U.S.A. to responsibly continue the line of events with its imperative to provide a forum for all fundamental issues surrounding the group-III nitrides for efficiency applications. The Materials Research Society was contracted for all administrative tasks of the workshop, including bookkeeping and fiscal responsibility.

As a workshop venue, the Hilton Orlando Buena Vista, Orlando, Florida, U.S.A. was contracted during the week of October 2 – 7, 2016. Prof. Siddharth Rajan (Ohio State University) and Dr. Stacia Keller (University of California - Santa Barbara) have taken on the charge as Program co-Chairs and will be assisted by Prof. Debdeep Jena (Cornell University) as Program Chair USA, Prof. Kei May Lau (Hong Kong University of Science and Technology, China) as Program Chair Asia, and Prof. Nicolas Grandjean (Ecole Polytechnique Federale de Lausanne, Switzerland) as Program Chair Europe.



Prof. Daniel Feezell (University of New Mexico) has taken on the charge as Proceedings Chair. Proceedings have been contracted to Wiley-VCH Verlag GmbH & Co. KGaA for a special issue in physica status solidi, the journal that has published a continuous sequence number of previous proceedings of IWN.



**Figure 3. Short course on TCAD device simulation.**

The technical program of the conference was composed by a total of 781 accepted papers, selected from all the submissions by an international technical program committee led by Dr. Stacia Keller and Prof. Siddharth Rajan. 436 of those papers were selected for oral talks, while there were 345 posters. These papers were divided into 6 topical areas: Growth, Optical Devices, Electronic Devices, Basic Material Properties, Nanostructures, and Novel Materials and Devices. The table below shows the number of papers in each topic.

A	Growth	151
B	Optical Devices	114
C	Electronic Devices	139
D	Basic Material Properties	186
E	Nanostructures	106
F	Novel Materials and Devices	85

**Figure 4. Number of papers per topical area.**

The conference also hold two short courses, for the first time in its history. The first short course focused on “TCAD for Nitride Semiconductor Device Design and Analysis”, while the second one was on “(Al, Ga, In)N Characterization Using X-Ray Diffraction”, with a total of 80 attendees. The following three rump sessions were also organized:

<b>Rump Session I:</b> International North	<b><i>Is There a Suitable Future for Ordered Nanostructures as Real Devices?</i></b> Chair: Enrique Calleja
<b>Rump Session II:</b> International Center	<b><i>Do We Really Need Better LEDs?</i></b> Chair: Michael Krames
<b>Rump Session III:</b> International South	<b><i>The Future of Wide-Bandgap Electronics</i></b> Chair: Robert Coffie

### **Intellectual merit**

This ONR award was key for the successful organization of the 2016 International Workshop on Nitride Semiconductors. With close to 800 attendees, this was the largest event of the year for the III-nitride community. This conference was very effective in introducing the materials science and device physics communities to the most recent innovations and developments in the field of GaN material growth, characterization and devices.

Thanks to the ONR support, we were able to reduce the student registration fee for the short course and to provide partial travel support to 26 students. The name of these students is available upon request.

These students were selected by contacting numerous universities (University of Notre Dame, University of Maryland, University of California – Santa Barbara, MIT, Penn State...) and asking them to submit student papers and send their best students to the conference. Among all the students attending the conference and presenting posters, the conference organizers selected three for the “2016 IWN Best Student Paper Award.”

### **Broader Impact**

IWN provided student participants with an opportunity to gain exposure to the most advanced and novel concepts in gallium nitride research, both in materials and devices.

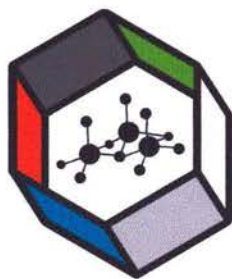
The timing of the conference was ideal for this generation of students to learn how this new family of semiconductors has developed and how companies all around the world are positioning themselves to take advantage of the new opportunities enabled by

GaN. These lessons will be useful beyond current GaN devices, as these students will be able to apply them to any future new materials and technologies that they will encounter during their career.

***Financial Information***

The budget provided by this ONR grant allowed reducing the registration fees of 26 graduate students by approximately 50% with respect to the fees paid by the regular attendees.





# IWN 2016

International Workshop on Nitride Semiconductors

## PROGRAM & EXHIBIT GUIDE

October 2-7, 2016 | Hilton Orlando Lake Buena Vista | Orlando, Florida

# SPECIAL THANKS!

IWN 2016 has been funded, in part, by the generous contributions of these organizations.

## SHORT COURSES



[www.panalytical.com](http://www.panalytical.com)

**SILVACO**

[www.silvaco.com](http://www.silvaco.com)

## POSTER SESSIONS



[www.mathesongas.com](http://www.mathesongas.com)

**OSRAM**  
Opto Semiconductors

[www.osram-os.com](http://www.osram-os.com)

## REFRESHMENT BREAKS

**DOWA**  
DOWA ELECTRONICS MATERIALS CO., LTD.

[www.dowa.co.jp/index\\_e.html](http://www.dowa.co.jp/index_e.html)

## JOURNAL NOTEBOOKS



[www.plasmatherm.com](http://www.plasmatherm.com)

## CONFERENCE SUPPORT

**Crystal IS™**  
High Performance UVC LEDs

[www.cisuv.com](http://www.cisuv.com)



[www.nsf.gov](http://www.nsf.gov)



[www.onr.navy.mil](http://www.onr.navy.mil)



[www.sandia.gov](http://www.sandia.gov)



[www.staibinstruments.com](http://www.staibinstruments.com)

**Veeco**

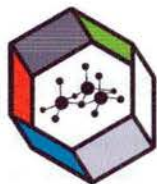
[www.veeco.com](http://www.veeco.com)

## BADGE LANYARDS



[www.attolight.com](http://www.attolight.com)





# IWN 2016 International Workshop on Nitride Semiconductors

October 2-7, 2016 | Hilton Orlando Lake Buena Vista | Orlando, Florida

## WELCOME TO THE CONFERENCE

On behalf of the Conference Chairs and Committee Members, it is with great pleasure that we welcome you to the **International Workshop on Nitride Semiconductors (IWN 2016)**. We are confident this Conference will continue the IWN tradition of communicating the newest results in all aspects of III-nitride semiconductor science, engineering and industry.

### Honorary Chair

M. Asif Khan, University of South Carolina

### Conference Co-Chair

Alan Doolittle, Georgia Institute of Technology

### Conference Co-Chair

Tomás Palacios, Massachusetts Institute of Technology

### Technical Program Co-Chair

Stacia Keller, University of California, Santa Barbara

### Technical Program Co-Chair

Siddharth Rajan, The Ohio State University

### Invited Regional Chairs

#### Americas

Debdeep Jena, Cornell University

#### Asia

Kei May Lau, Hong Kong University of Science and Technology

#### Europe

Nicolas Grandjean, École Polytechnique Fédérale de Lausanne

### Proceedings Chair

Daniel Feezell, University of New Mexico

## TABLE OF CONTENTS

Committees .....	2
Plenary Sessions .....	3
Floor Plans .....	4
Travel Resources .....	4
Daily Schedule of Events .....	5
Monday Program At-A-Glance .....	8
Monday Poster Session .....	10
Tuesday Program At-A-Glance .....	14
Wednesday Program At-A-Glance .....	18
Upcoming Meetings of Interest to the IWN Community .....	19
Wednesday Poster Session .....	20
Thursday Program At-A-Glance .....	24
Friday Program At-A-Glance .....	29
Late News .....	30
Exhibit .....	31
Technical Program .....	37
Index .....	267

## CONFERENCE HIGHLIGHTS

### THE IWN PROGRAM

Scientists from around the world will converge in Orlando, Florida, this week to share ideas, present technical information and contribute to the advancement of III-nitride semiconductors. Featuring **802 oral/poster presentations**, IWN 2016 offers a strong program of plenary, invited and contributed talks and poster presentations covering the newest results on materials, optoelectronic devices, electronic devices, advanced new device concepts and applications and theory.

### CONFERENCE BADGE

Badges are required at all times within the Conference venue.

### RECORDING/PHOTO POLICY

Recording or photographing Conference presentations, posters or displays is strictly prohibited without prior permission of the presenter.

### SHORT COURSES

Start the Conference off on Sunday afternoon with one of **two short courses**. Featured topics are **TCAD for Nitride Semiconductor Device Design & Analysis** and **(Al,Ga,In)N Characterization Using X-Ray Diffraction**. Short courses are not included in your registration fee, and require additional purchase at the Registration Desk. Due to limited space available, registration will be on a first-come, first-served basis.

### WELCOME RECEPTION

Conference attendees are invited to the Welcome Reception on Sunday evening from 5:00 pm – 6:30 pm in the Grand Foyer. Before a full week of technical sessions, this is a great time to enjoy light snacks and refreshments, meet with old colleagues, make new connections and share information. **The Welcome Reception is included in your registration fee.**

### POSTER SESSIONS/RECEPTIONS

Authors will be available for in-depth discussions Monday and Wednesday in the Grand Ballroom. **These popular sessions are open to all Conference attendees.** Complimentary refreshments will be served.

### EXHIBIT

Be sure to visit the **IWN exhibitors** Monday through Thursday in the Grand Ballroom. Learn more about the latest products and services in the rapidly evolving world of III-nitride semiconductors. See page 31 for exhibit hours.

### CONFERENCE BANQUET

Make time for this year's Conference Banquet on Wednesday evening from 7:00 pm – 9:30 pm at **Epcot®'s World Showplace Pavilion and Courtyard**. Tickets for this event are required and may be purchased at the Registration Desk at the on-site fee of \$75 per person for attendees and \$150 per person for companions. Admission to the Banquet is not included in the Conference registration fee. Round-trip transportation will be provided from The Hilton Orlando Lake Buena Vista. Buses will depart for the Banquet at approximately 6:30 pm.

### RUMP SESSIONS

Thursday evening, choose to attend one of **three Rump Sessions**. Attendance for these thought-provoking sessions is free to Conference attendees.

**Rump Session I: Is There a Suitable Future for Ordered Nanostructures as Real Devices?**

**Chair:** Enrique Calleja Pardo,  
Universidad Politécnica de Madrid

**Rump Session II: Do We Really Need Better LEDs?**

**Chair:** Michael Krames, Arkesso

**Rump Session III: The Future of Wide-Bandgap Electronics**

**Chair:** Debdeep Jena, Cornell University

IWN 2016 has been managed by



CONFERENCE SERVICES

Because the Experience Matters

[www.mrs.org/conference-services](http://www.mrs.org/conference-services)



## TECHNICAL PROGRAM COMMITTEE

### A: Fundamentals of Material Growth

#### A1: Bulk Growth

**Topic Chair:** Izabella Grzegory, UNIPRESS  
Matthias Bickermann, Institut für Kristallzüchtung Berlin  
Yoshihiro Kangawa, Kyushu University  
Elke Meissner, Fraunhofer Institute  
Siddha Pimpurkar, University of California, Santa Barbara

#### A2: Epitaxial Growth

**Topic Chair:** Michael Kneissl, Technical University of Berlin  
Russell Dupuis, Georgia Institute of Technology  
Hiroshi Fujioka, University of Tokyo  
Jung Han, Yale University  
Ferdinand Scholz, University of Ulm  
Bo Shen, Peking University  
Euijoun Yoon, Seoul National University

### B: Optical Devices

#### B1: Visible Devices

**Topic Chair:** Michael Krames, Arkesso  
Aurelien David, SORAA  
Jong Kyu Kim, Pohang University of Science and Technology  
Katsumi Kishino, Sophia University  
Martin Strassburg, OSRAM Opto Semiconductors GmbH

#### B2: UV Devices

**Topic Chair:** Hideki Hirayama, RIKEN  
Koh Matsumoto, Taiyo Nippon Sanso Corporation  
Zetian Mi, McGill University  
Leo Schowalter, Crystal IS Inc.  
Max Shatalov, Sensor Electronic Technology Inc.

#### B3: Photodetectors, Photovoltaics, Intersubband Devices

**Topic Chair:** Eva Monroy, Centre d'Études Nucléaires de Grenoble  
Ray-Hua Horng, National Chiao Tung University  
Oana Malis, Purdue University

### C: Electronic Devices

#### C1: RF/mm Wave Devices

**Topic Chair:** Geok Ing Ng, Nanyang Technological University  
Colombo Bolognesi, ETH Zurich  
Eduardo Chumbes, Raytheon Company  
Masaaki Kuzuhara, Fukui University  
Farid Medjdoub, University of Lille  
Grace Xing, Cornell University

#### C2: Power Devices

**Topic Chair:** Tetsu Kachi, Toyota  
Subramaniam Arulkumaran, Nanyang Technological University  
Srabanti Chowdhury, University of California, Davis  
Matteo Meneghini, University of Padova  
Jun Suda, Kyoto University  
Chang Soo Suh, Texas Instruments Inc.

### D: Basic Material Properties

#### D1: Materials Characterization

**Topic Chair:** Yoichi Kawakami, Kyoto University  
Ulrich T. Schwarz, Technische Universität Chemnitz  
Jong-In Shim, Hanyang University  
Christian Wetzel, Rensselaer  
Atsushi A. Yamaguchi, Kanazawa Institute of Technology

#### D2: Theory and Simulation

**Topic Chair:** Chris Van de Walle, University of California, Santa Barbara  
Izabela Gorczyca, UNIPRESS  
Yuh-Renn Wu, National Taiwan University

### E: Nanostructures

**Topic Chair:** Enrique Calleja, Technical University of Madrid  
Yasuhiko Arakawa, University of Tokyo  
Kris Bertness, National Institute of Standards and Technology  
Sergey Ivanov, Ioffe Institute  
Andreas Waag, Braunschweig University of Technology

### F: Novel Materials and Devices

**Topic Chair:** Martin Eickhoff, University of Giessen  
Volker Cimalla, Fraunhofer Institute  
Yvon Cordier, Centre de Recherche sur l'HétéroEpitaxie et ses Applications  
Pierre Lefebvre, Centre National de la Recherche Scientifique /  
University of Montpellier  
Fan Ren, University of Florida

## INTERNATIONAL ADVISORY COMMITTEE

### AMERICAS

Russell Dupuis, Georgia Institute of Technology  
M. Asif Khan, University of South Carolina  
Umesh Mishra, University of California,  
Santa Barbara  
Hadis Morkoc, Virginia Commonwealth  
University  
Fernando Ponce, Arizona State University  
Christian Wetzel, Rensselaer

### ASIA

Isamu Akasaki, Meijo University  
Hiroshi Amano, Nagoya University  
Jen-Inn Chyi, National Central University  
Kazumasa Hiramatsu, Mie University  
Katsumi Kishino, Sophia University  
Yasushi Nanishi, Ritsumeikan University  
Kentaro Onabe, University of Tokyo  
Song-Ju Park, Gwangju Institute of Science  
and Technology  
Shiro Sakai, University of Tokushima  
Bo Shen, Peking University  
Euijoun Yoon, Seoul National University  
Akihiko Yoshikawa, Chiba University

### EUROPE

Bruno Daudin, CEA Tech-Grenoble  
Bernard Gil, Montpellier 2 University  
Nicolas Grandjean, École Polytechnique  
Fédérale de Lausanne  
Axel Hoffmann, Technical University of Berlin  
Detlef Hommel, Wrocławskie Centrum Badań  
Sergey Ivanov, Ioffe Institute  
Michael Kneissl, Technical University of Berlin  
Bo Monemar, Linköping University  
Elias Muñoz, Technical University of Madrid  
Peter Parbrook, Tyndall National Institute  
Martin Stutzmann, Technical University  
of Munich  
Tadeusz Suski, UNIPRESS

# PLENARY SESSIONS

## MONDAY

8:45 am – 12:30 pm, International Ballroom



9:00 am – 9:45 am

**Martin Strassburg**  
OSRAM Opto  
Semiconductors GmbH

*Perspectives of III-N  
Optoelectronics*



9:45 am – 10:30 am

**Umesh Mishra**  
University of California,  
Santa Barbara

*Current Status and Future  
Directions in GaN-Based  
Electronics*



11:00 am – 11:45 am

**Hideki Hirayama**  
RIKEN

*Current Status and Future  
of III-Nitride Ultraviolet  
and THz Emitters*



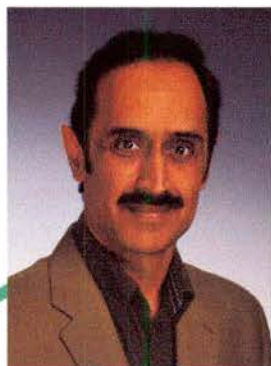
11:45 am – 12:30 pm

**Thomas Kazior**  
Raytheon Company

*Wafer Scale Integration  
of GaN with Si CMOS  
for RF Applications*

## FRIDAY

9:00 am – 12:00 pm, Grand Ballroom



9:00 am – 9:45 am

**Jy Bhardwaj**  
Lumileds

*Progress in LED Technology  
for Solid-State Lighting*



9:45 am – 10:30 am

**Takashi Egawa**  
Nagoya Institute of Technology

*Heteroepitaxial Growth  
of GaN-on-Si and Power  
Device Applications*



# TRAVEL RESOURCES

The Conference does not endorse or sponsor any of the listings below. Information is provided as a courtesy to attendees.

## PARKING

Self-parking is available at the Hilton Orlando Lake Buena Vista for \$17.00 per day, per vehicle. Valet service is also available for \$22.00 per day, per vehicle.

## PUBLIC TRANSPORTATION

The LYNX is the area's public transit provider, with direct service to Disney World, downtown Orlando, Kissimmee, Sea World and more. **Ride all day for \$4.50 per person** (pay for your trip as you board the bus). Visit [golynx.com](http://golynx.com) for a list of stops and service schedule.

## BUSINESS CENTER

A FedEx Business Center, located in the Hilton Orlando Lake Buena Vista lobby, is accessible to all Conference attendees. Relevant fees will apply.

### Hours of operation:

Monday – Friday 7:30 am – 6:00 pm  
Saturday 8:00 am – 1:00 pm

## INTERNET ACCESS

Conference attendees will have complimentary wireless internet access in their sleeping rooms at the Hilton Orlando Lake Buena Vista.

## ON-SITE DINING OPTIONS

**Andiamo**—authentic and unique Italian bistro and grille, offering freshly prepared pasta dishes, traditional meats and grilled fish

**Covington Mill Restaurant**—family-friendly eatery serving breakfast buffet and lunch specials, including salads, pastas and sandwiches

**John T's Sports Bar**—cocktails and light meals in a relaxed atmosphere, complete with big-screen TVs for every sporting event

**Rum Largo**—poolside bar and café offering daily drink specials, delectable salads and sandwiches

**Mainstreet Market**—gourmet deli and ice cream shop all rolled into one—meats, cheeses, fresh fruit, snacks, and of course, hand-scooped ice cream with freshly made waffle cones

In addition to these Hilton Orlando Lake Buena Vista dining options, there are many restaurants within walking distance of the hotel. Visit the Registration Desk for a directory of nearby restaurants.

# FLOOR PLANS

## HILTON ORLANDO LAKE BUENA VISTA





# DAILY SCHEDULE OF EVENTS

## SUNDAY

Registration	12:00 pm – 5:00 pm	International Ballroom Foyer
Short Course I: TCAD for Nitride Semiconductor Device Design & Analysis (presented by SILVACO)	1:00 pm – 5:00 pm	Narcissus
Short Course II: (Al,Ga,In)N Characterization Using X-Ray Diffraction (presented by PANalytical B.V.)	1:00 pm – 5:00 pm	Orange Blossom
Break	3:00 pm – 3:30 pm	Grand Foyer
Welcome Reception	5:00 pm – 6:30 pm	Grand Foyer

## MONDAY

Registration	7:30 am – 5:00 pm	International Ballroom Foyer
PL.1: Plenary Session I	8:45 am – 12:30 pm	International Ballroom
Break	10:30 am – 11:00 am	Grand Foyer
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
A1.1: Bulk Growth I: Bulk Crystal Growth	2:00 pm – 6:00 pm	Azalea/Begonia
A2.1: Epitaxial Growth I	2:00 pm – 3:45 pm	Camellia/Dogwood
B1.1: Visible Devices I: Visible Light Emitters	2:00 pm – 3:45 pm	International South & Center
C0.1: Electronic Devices I	2:00 pm – 6:00 pm	Narcissus/Orange Blossom
D2.1: Theory & Simulation I: Basic Materials Properties—Theory	2:00 pm – 3:45 pm	International North
F0.1: Novel Materials & Devices I	2:00 pm – 3:45 pm	Poinsettia/Quince
Exhibit	3:00 pm – 8:30 pm	Grand Ballroom
Monday Poster Session Set-up	3:00 pm – 6:30 pm	Grand Ballroom
Break	3:45 pm – 4:15 pm	Grand Ballroom
B2.1: UV Devices I: UV Emitters	4:15 pm – 6:00 pm	International South & Center
B3.1: Photodetectors, Photovoltaics, Intersubband Devices I: Photodetectors & Photovoltaics I	4:15 pm – 6:00 pm	Poinsettia/Quince
D1.1: Materials Characterization I: Basic Materials Properties—Characterization	4:15 pm – 6:00 pm	Camellia/Dogwood
E0.1: Nanostructures I	4:15 pm – 6:00 pm	International North
PS1: Poster Session I (Posters will remain through Tuesday at 4:00 pm)	6:30 pm – 8:30 pm	Grand Ballroom

## Submit Your Paper for Publication

Papers from this year's International Workshop on Nitride Semiconductors (IWN 2016) will be published in two regular special issues (not conference proceedings) in *pss* (a)—*applications and materials science* and *pss* (b)—*basic solid state physics*.

The Guest Editors and *pss* Editorial Office invite IWN 2016 presenters to contribute a Feature Article (topical review) or Original Paper manuscript based on, or related to, their Conference presentation(s).

### Submission Deadline—October 17, 2016

Please see the Publication page on the Conference website at [www.mrs.org/iwn-2016-publication](http://www.mrs.org/iwn-2016-publication) for more information, including submission instructions.

#### GUEST EDITORS

**CHAIR** Daniel Feezell  
Srabanti Chowdhury  
Shyh-Chiang Shen  
Jonathan Wierer



## TUESDAY

Registration	7:30 am – 5:00 pm	International Ballroom Foyer
A2.2: Epitaxial Growth II: Epitaxial Growth for UV Emitters	8:30 am – 10:15 am	International South
B1.2: Visible Devices II: Long Wavelength Emitters	8:30 am – 10:15 am	International Center
C1.1: RF/mm Wave Devices I: Electronic Devices for RF Applications & Late News	8:30 am – 10:15 am	Narcissus/Orange Blossom
D1.2: Materials Characterization II: Characterization of InGaN Films & QWs	8:30 am – 10:15 am	International North
E0.2: Nanostructures II: GaN Nanostructures Synthesis & Characterization	8:30 am – 12:30 pm	Camellia/Dogwood
F0.2: Novel Materials & Devices II: Nitride MEMS & Other Novel GaN Device Architectures	9:00 am – 10:15 am	Azalea/Begonia
Exhibit	9:00 am – 12:30 pm	Grand Ballroom
Break	10:15 am – 10:45 am	Grand Ballroom
A1.2: Bulk Growth II: Bulk (Al,Ga)N Growth & Optoelectronic Devices on Bulk AlN Substrates	10:45 am – 12:30 pm	Azalea/Begonia
A2.3: Epitaxial Growth III: Growth of Semipolar & Cubic GaN	10:45 am – 12:30 pm	International South
B1.3: Visible Devices III: Visible LEDs & LDs	10:45 am – 12:30 pm	International Center
C0.2: Electronic Devices II: Devices for Power Electronics, Traps & Dielectrics	10:45 am – 12:30 pm	Narcissus/Orange Blossom
D1.3: Materials Characterization III: Characterization of (Al,Ga,In)N Films & QWs	10:45 am – 12:30 pm	International North
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
A2.4: Epitaxial Growth IV: Growth of Light Emitters & (In,Ga)N	2:00 pm – 3:45 pm	International South
B2.2: UV Devices II: UV LEDs	2:00 pm – 3:45 pm	International Center
B3.2: Photodetectors, Photovoltaics, Intersubband Devices II: Photovoltaics & Photodetectors II	2:00 pm – 3:45 pm	Azalea/Begonia
C0.3: Electronic Devices III: Electronic Devices for RF & Power Applications	2:00 pm – 3:45 pm	Narcissus/Orange Blossom
D1.4: Materials Characterization IV: Atomic Structure & Dislocation Effects & Late News	2:00 pm – 3:45 pm	International North
D2.2: Theory & Simulation II: Theory: Carrier Localization, Ordering Phenomena & Crystal Growth/ Radiative & Non-Radiative Processes in Optoelectronic Devices	2:00 pm – 6:00 pm	Camellia/Dogwood
Exhibit	3:00 pm – 5:00 pm	Grand Ballroom
Break	3:45 pm – 4:15 pm	Grand Ballroom
A2.5: Epitaxial Growth V: Growth for Electronic Devices & Basic Growth Studies	4:15 pm – 6:00 pm	International South
B2.3: UV Devices III: UV Lasers & Lasing & Late News	4:15 pm – 6:15 pm	International Center
C2.1: Power Devices I: Devices for Power Electronics I	4:15 pm – 6:15 pm	Narcissus/Orange Blossom
D1.5: Materials Characterization V: Characterization of GaN & InN	4:15 pm – 6:00 pm	International North
F0.3: Novel Materials & Devices III: Epitaxial Lift Off & Group-V Alloys	4:15 pm – 6:00 pm	Azalea/Begonia

## WEDNESDAY

Registration	7:30 am – 11:30 am	International Ballroom Foyer
Wednesday Poster Session Set-up	7:30 am – 10:00 am	Grand Ballroom
A1.3: Bulk Growth III: Bulk Growth & Late News	8:00 am – 10:00 am	Azalea/Begonia
A2.6: Epitaxial Growth VI: Molecular Beam Epitaxy of III-Nitrides	8:00 am – 10:00 am	International South
B1.4: Visible Devices IV: Visible Emitters: Alloy Disorder, Loss Mechanisms & Strain Engineering	8:00 am – 10:00 am	International Center
C2.2: Power Devices II: Devices for Power Electronics II	8:00 am – 10:00 am	Narcissus/Orange Blossom
E0.3: Nanostructures III: Characterization of Nanostructures Including Tomography	8:00 am – 10:00 am	Camellia/Dogwood
D1.6: Materials Characterization VI: Characterization of Electronic Devices & Late News	8:15 am – 10:00 am	International North
F0.4: Novel Materials & Devices IV: Boron Containing & Computational Nitrides	8:15 am – 10:00 am	Poinsettia/Quince
Exhibit	9:00 am – 11:30 am	Grand Ballroom
Break	10:00 am – 11:30 am	Grand Ballroom
PS2: Poster Session II (Posters will remain through Thursday at 11:00 am)	10:00 am – 11:30 am	Grand Ballroom
Optional Tours (Buses depart between 11:30 am – 11:45 am from the Convention Entrance next to Grand Ballroom Salon 6)	11:30 am – 5:10 pm	
Conference Banquet (Buses depart at 6:30 pm from the Convention Entrance next to Grand Ballroom Salon 6)	7:00 pm – 9:30 pm	Epcot®'s World Showplace Pavilion & Courtyard



## THURSDAY

## DAILY SCHEDULE OF EVENTS

Registration	7:30 am – 5:00 pm	International Ballroom Foyer
A2.7: Epitaxial Growth VII: Epitaxial Growth of (Al,Ga)N	8:00 am – 9:45 am	International South
B1.5: Visible Devices V: Visible Light Emitters: Contacts, Tunnel Junctions & Monolithic Integration & Late News	8:00 am – 10:00 am	International Center
B3.3: Photodetectors, Photovoltaics, Intersubband Devices III/F0.5: Novel Materials & Devices V: Photodetectors & Novel Devices	8:00 am – 9:45 am	Poinsettia/Quince
C0.4: Electronic Devices IV: Quantum Devices & Sensors & Late News	8:00 am – 12:30 pm	Narcissus/Orange Blossom
D1.7: Materials Characterization VII: Characterization of Electronic Devices	8:00 am – 9:45 am	International North
D2.3: Theory & Simulation III: Theory of Point Defects & Modeling of Optoelectronic Devices	8:00 am – 12:15 pm	Azalea/Begonia
E0.4: Nanostructures IV: (In,Ga)N Nanostructures: Optoelectronic Devices & Properties	8:00 am – 12:30 pm	Camellia/Dogwood
Exhibit	9:00 am – 11:00 am	Grand Ballroom
Break	9:45 am – 10:45 am	Grand Ballroom
A1.4: Bulk Growth IV/A2.8: Epitaxial Growth VIII: Tri-Halide Vapor Epitaxy of (In,Ga)N & Doping of GaN	10:45 am – 12:30 pm	International South
B1.6: Visible Devices VI: Light Emitters: Lasers	10:45 am – 12:30 pm	International Center
D1.8: Materials Characterization VIII: Characterization of (Al,Ga)N	10:45 am – 12:30 pm	International North
F0.6: Novel Materials & Devices VI: Watersplitting & Sensors	10:45 am – 12:30 pm	Poinsettia/Quince
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
A2.9: Epitaxial Growth IX: Epitaxial Growth of N-Polar Nitrides & GaN-on-Si	2:00 pm – 3:45 pm	International South
B1.7: Visible Devices VII: Light Emitters & Their Degradation	2:00 pm – 3:45 pm	International Center
B2.4: UV Devices IV: UV Emitters	2:00 pm – 3:45 pm	Azalea/Begonia
C2.3: Power Devices III: Devices for Power Electronics III	2:00 pm – 3:45 pm	Narcissus/Orange Blossom
D1.9: Materials Characterization IX: Characterization of Optical Processes in (In,Ga)N	2:00 pm – 3:45 pm	International North
E0.5: Nanostructures V: Nanostructures for Electronic Applications	2:00 pm – 3:45 pm	Camellia/Dogwood
F0.7: Novel Materials & Devices VII: Novel Sensing Devices & Magnetism	2:00 pm – 3:45 pm	Poinsettia/Quince
Break	3:45 pm – 4:15 pm	Grand Foyer
A2.10: Epitaxial Growth X: Growth of UV Devices & Thick AlN & GaN Films	4:15 pm – 5:45 pm	Azalea/Begonia
B3.4: Photodetectors, Photovoltaics, Intersubband Devices IV: Characterization of Intersubband Structures & Late News	4:15 pm – 5:45 pm	Poinsettia/Quince
C0.5: Electronic Devices V: Doping, Implantation & Isolation & Late News	4:15 pm – 6:15 pm	Narcissus/Orange Blossom
D1.10: Materials Characterization X: Characterization of Low Dimensional Nitrides & Defects	4:15 pm – 6:15 pm	International Center
D1.11: Materials Characterization XI: Wear of Nitride Materials & Properties of GaN Based Structures & Late News	4:15 pm – 6:00 pm	International North
E0.6: Nanostructures VI: III-N Quantum Dots	4:15 pm – 6:00 pm	Camellia/Dogwood
F0.8: Novel Materials & Devices VIII/A2.11: Epitaxial Growth XI: Growth of Novel Materials & Devices	4:15 pm – 6:00 pm	International South
Rump Session I: Is There a Suitable Future for Ordered Nanostructures as Real Devices?	6:15 pm – 8:00 pm	International North
Rump Session II: Do We Really Need Better LEDs?	6:15 pm – 8:00 pm	International Center
Rump Session III: The Future of Wide-Bandgap Electronics	6:15 pm – 8:00 pm	International South

## FRIDAY

Registration	8:30 am – 11:30 am	International Ballroom Foyer
PL.2: Plenary Session II	9:00 am – 10:30 am	Grand Ballroom
Break	10:30 am – 11:00 am	Grand Foyer
Closing Remarks	11:00 am – 12:00 pm	Grand Ballroom



# MONDAY PROGRAM AT-A-GLANCE

\* Invited Talk

PL.1: Plenary Session I				International Ballroom
8:45 am	Opening Remarks			
9:00 am	Martin Strassburg	*PL.1.01	Perspectives of III-N Optoelectronics	
9:45 am	Umesh Mishra	*PL.1.02	Current Status and Future Directions in GaN-Based Electronics	
10:30 am	Break			
11:00 am	Hideki Hirayama	*PL.1.03	Current Status and Future of III-Nitride Ultraviolet and THz Emitters	
11:45 am	Thomas Kazior	*PL.1.04	Wafer Scale Integration of GaN with Si CMOS for RF Applications	
A1.1: Bulk Growth I: Bulk Crystal Growth				Azalea/Begonia
2:00 pm	Michal Bockowski	*A1.1.01	Recent Progress in Bulk GaN Growth by HVPE on Native Substrates	
2:30 pm	Jianfeng Wang	A1.1.02	Low-Dislocation Density and 4 Inch GaN Substrates Grown by Hydride Vapor Phase Epitaxy	
2:45 pm	Shin Goubara	A1.1.03	Bulk GaN Substrate with Overall Dislocation Density in the Order of $10^4 - 10^5/\text{cm}^2$ by Hydride Vapor Phase Epitaxy	
3:00 pm	Mikolaj Amilusik	A1.1.04	Study of Homoepitaxial Non-Polar and Semi-Polar Growth of GaN by HVPE—Influence of Lateral Growth on HVPE-GaN Grown in the c-Direction	
3:15 pm	Takehiro Yoshida	A1.1.05	Development of GaN Substrate with Large Diameter and Low Orientation Deviation	
3:30 pm	Tomasz Sochacki	A1.1.06	Highly Conductive HVPE-GaN Grown on Native Seeds	
3:45 pm	Break			
4:15 pm	Makoto Saito	*A1.1.07	High Quality Bulk GaN Crystal Grown by Acidic Ammonothermal Method	
4:45 pm	Marcin Zajac	*A1.1.08	Recent Developments on Growth and Applications of Ammonothermal GaN Substrates	
5:15 pm	Mark D'Evelyn	A1.1.09	Optical, Electrical, and Thermal Properties of N-Type Bulk Ammono-Acidic GaN	
5:30 pm	Masatoshi Hayashi	A1.1.10	Enhancement of Lateral Growth of GaN Crystal with Extremely Low Dislocation Density by Na-Flux Point Seed Technique	
5:45 pm	Michal Fijalkowski	A1.1.11	Free-Standing HVPE-GaN Crystals—Slicing, Wafering and Preparation of Seeds	
A2.1: Epitaxial Growth I				Camellia/Dogwood
2:00 pm	Andrew Allerman	*A2.1.01	Low Dislocation Density AlGaIn Epilayers on Sapphire for UV Laser Diodes and Power Electronics	
2:30 pm	Konrad Bellmann	A2.1.02	Phase Diagram for Island Growth, Step Flow Growth, and Step Bunching Growth of AlN Layers	
2:45 pm	Hideto Miyake	A2.1.03	Fabrication of High-Quality AlN Template on Sapphire by High-Temperature Annealing	
3:00 pm	Tetsuya Akasaka	A2.1.04	N-Face InN/GaN (000-1) Double Heterostructures Grown by Metalorganic Vapor Phase Epitaxy	
3:15 pm	Armelle Even	A2.1.05	Green and Amber Emission Thanks to Full InGaIn Structure on Relaxed InGaIn Substrate	
3:30 pm	Fedor Ketzer	A2.1.06	High Internal Quantum Efficiency Long Wavelength Semipolar Quantum Wells with and without Strain Controlling AlInN Layers	
3:45 pm	Break			
D1.1: Materials Characterization I: Basic Materials Properties—Characterization				Camellia/Dogwood
4:15 pm	Youngwoon Kim	*D1.1.01	Cathodoluminescence Characteristic of InGaIn/GaN MQWs Grown on Polar and Semi-Polar Substrates	
4:45 pm	Filip Tuomisto	*D1.1.02	Positron Spectroscopy of III-Nitrides	
5:15 pm	Julita Smalc-Koziorowska	D1.1.03	Basal Stacking Fault Domains as a Source of a-Type Threading Dislocations in Nitride Epitaxial Layers	
5:30 pm	Ruslan Ivanov	D1.1.04	Spatial Variations of Photoluminescence Polarization in m-Plane InGaIn Quantum Wells	
5:45 pm	Felix Feix	D1.1.05	Localization of Individual Electrons and Holes in Submonolayer InN Quantum Sheets Embedded in GaN	
D2.1: Theory and Simulation I: Basic Materials Properties—Theory				International North
2:00 pm	Chris Van de Walle	*D2.1.01	Correct Implementation of Polarization Constants in Nitride Semiconductors	
2:30 pm	Yoshihiro Kangawa	*D2.1.02	Ab Initio-Based Approach to Crystal Growth of Nitride Semiconductors—Contribution of Growth Orientation and Surface Reconstruction	
3:00 pm	Mario Ancona	D2.1.03	Nonlinear Thermoelectromechanical Analysis of III-N Devices	
3:15 pm	Parijat Sengupta	D2.1.04	Tuning the Topological Character of Wurtzite III-Nitrides—Interplay of Crystal-Field Splitting, Spin-Orbit Coupling, and p-d Hybridization Induced Repulsion	
3:30 pm	Giacomo Miceli	D2.1.05	Self-Compensation Due to Point Defects in Mg-Doped GaN	
3:45 pm	Break			



E0.1: Nanostructures I			International North
4:15 pm	Enrique Calleja Pardo	*E0.1.01	MBE Growth of Ordered InGa <sub>N</sub> /Ga <sub>N</sub> Nanocolumns—Applications to Classical/Quantum Light Sources and Pseudosubstrates
4:45 pm	Mark Holmes	E0.1.02	The Extreme Emission Properties of III-Nitride Quantum Dots and the Effects of Extreme Environments on Those Properties
5:00 pm	Yuzo Matsui	E0.1.03	Optical Pumped Lasing at Amber Region in Short Period Nanocolumn Arrays
5:15 pm	Marcus Mueller	E0.1.04	Nanoscale Cathodoluminescence Mapping of Three-Dimensional InGa <sub>N</sub> /Ga <sub>N</sub> Core-Shell Microrod Light Emitting Diodes
5:30 pm	Naoki Sakakibara	E0.1.05	Closely-Packed Two-Dimensional Arrangement of Microscopic Area (10×10 nm <sup>2</sup> ) InGa <sub>N</sub> -Based Nanocolumn LEDs with Different Emission Colors
5:45 pm	Jan Mussener	E0.1.06	Optical Properties of Externally Biased AlGa <sub>N</sub> /Ga <sub>N</sub> Nanowire Heterostructures
B1.1: Visible Devices I: Visible Light Emitters			International South & Center
2:00 pm	Shingo Masui	*B1.1.01	High Power Blue and Green AlInGa <sub>N</sub> Laser Diodes
2:30 pm	Aurelien David	*B1.1.02	Recombination and Transport Dynamics of III-Nitride LEDs—New Experimental Insights
3:00 pm	Charles Forman	B1.1.03	Nonpolar III-Nitride Vertical-Cavity Surface-Emitting Lasers
3:15 pm	Kenjo Matsui	B1.1.04	3-mW RT-CW Ga <sub>N</sub> -Based VCSELs and Their Temperature Dependence
3:30 pm	Stephan Reitzenstein	B1.1.05	Thresholdless Lasing of Nitride Nanobeam Cavities on Silicon
3:45 pm	Break		
B2.1: UV Devices I: UV Emitters			International South & Center
4:15 pm	Michael Kneissl	*B2.1.01	Exploring the Limits of AlGa <sub>N</sub> -Based Deep UV LEDs
4:45 pm	Yuewei Zhang	B2.1.02	Engineering of Hole Transport in Tunneling Injected UV-A LEDs
5:00 pm	Mohamed Lachab	B2.1.03	Optical Polarization Control of Photo-Pumped Stimulated Emission at 238 nm from AlGa <sub>N</sub> Multiple Quantum Wells on Bulk AlN
5:15 pm	Craig Moe	B2.1.04	Pseudomorphic LEDs on AlN Substrates Emitting at 235 nm
5:30 pm	Theeradetch Detchprohm	B2.1.05	Ultraviolet Micro-Cavity Light Emitting Diodes with an Electrically Conducting n-AlGa <sub>N</sub> /Ga <sub>N</sub> DBR Grown by Metalorganic Chemical Vapor Deposition
5:45 pm	Shigefusa Chichibu	B2.1.06	Defect-Resistant Emission Properties of Nonpolar m-Plane Al <sub>1-x</sub> In <sub>x</sub> N Epilayers for Deep-Ultraviolet to Visible Polarized-Light-Emitting Vacuum Fluorescent Display Devices
C0.1: Electronic Devices I			Narcissus/Orange Blossom
2:00 pm	Andrea Corrión	*C0.1.01	GaN MMIC Technology for mm-Wave Applications
2:30 pm	Matteo Meneghini	*C0.1.02	Key Reliability Issues and Degradation Mechanisms of Ga <sub>N</sub> -Based Power HEMTs
3:00 pm	Masanobu Hiroki	C0.1.03	Transferred-Substrate AlGa <sub>N</sub> /Ga <sub>N</sub> HEMTs with Thermal Resistance Comparable with HEMTs on SiC Substrate
3:15 pm	Farid Medjdoub	C0.1.04	Q-Band High Power AlN/GaN HEMTs With Over 45% PAE
3:30 pm	Jimmy Encomendero	C0.1.05	Dependence of Resonant Tunneling Current on Barrier Thickness in Ga <sub>N</sub> /AlN Resonant Tunneling Diodes Operating at Room Temperature
3:45 pm	Break		
4:15 pm	Steven Tom	*C0.1.06	Rethinking Power Density—How Ga <sub>N</sub> is Changing the Game in Power Electronics
4:45 pm	Tetsu Kachi	*C0.1.07	Current Status of Vertical Ga <sub>N</sub> Power Devices
5:15 pm	Mingda Zhu	C0.1.08	GaN MOSHEMT on Free-Standing Ga <sub>N</sub> Substrate with p-Al <sub>x</sub> Ga <sub>1-x</sub> N Back Barrier and 10 <sup>10</sup> On/Off Ratio
5:30 pm	Chirag Gupta	C0.1.09	Regrown Mg Doped Ga <sub>N</sub> Interlayer to Enhance Breakdown Voltage in Trench MOSFET
5:45 pm	Shireen Warnock	C0.1.10	Time-Dependent Dielectric Breakdown in High-Voltage Ga <sub>N</sub> MIS-HEMTs—The Role of Temperature
F0.1: Novel Materials & Devices I			Poinsettia/Quince
2:00 pm	Agne Zukauskaitė	*F0.1.01	AlScN, AlYN, and InYN—Emerging Nitride Solid Solutions
2:30 pm	Debbie Senesky	*F0.1.02	Gallium Nitride Sensing Technology for Extreme Harsh Environments
3:00 pm	Gordon Callsen	F0.1.03	Many-Particle Complexes Stabilized by a Degenerate Electron Gas in Highly Ge-Doped, Bulk Ga <sub>N</sub>
3:15 pm	Mohamed Mohamed	F0.1.04	Gallium Nitride-on-Silicon Photonic Crystal Platform for Second Harmonic Generation
3:30 pm	Mary Crawford	F0.1.05	Excitonic Properties of Hexagonal BN Grown by High-Temperature Metal-Organic Vapor-Phase Epitaxy
3:45 pm	Break		
B3.1: Photodetectors, Photovoltaics, Intersubband Devices I: Photodetectors & Photovoltaics I			Poinsettia/Quince
4:15 pm	Masatomo Sumiya	*B3.1.01	Key Factors for Improvement of InGa <sub>N</sub> Photovoltaic Performance
4:45 pm	Manijeh Razeghi	*B3.1.02	III-Nitride Based Avalanche Photodetectors
5:15 pm	Russell Dupuis	B3.1.03	Demonstration of Uniform and Reliable Ga <sub>N</sub> p-i-n Ultraviolet Avalanche Photodiode Arrays with Large Detection Area on Free-Standing Ga <sub>N</sub> Substrates
5:30 pm	Christophe Durand	B3.1.04	Influence of the Active Region Thickness on the Performance of InGa <sub>N</sub> /Ga <sub>N</sub> Multi-Quantum-Well Solar Cells
5:45 pm	Kasey Hogan	B3.1.05	Optimization of (Al)Ga <sub>N</sub> Based Betavoltaic Device



# MONDAY POSTER SESSION

## Poster Authors Set-Up

3:00 pm – 6:30 pm, Grand Ballroom

## General Viewing

6:30 pm – 8:30 pm, Grand Ballroom

*Authors should stand with their posters.*

## Tear Down

Posters not removed by **4:00 pm, Tuesday** will be discarded.

ABSTRACT	PRESENTER	TITLE
PS1.01	Jang Bo Shim	Growth & Characterization of Bulk GaN Single Crystals by Basic Ammonothermal Method
PS1.02	Guoqiang Ren	Bulk GaN Growth by HVPE & Ammonothermal in SINANO
PS1.03	Yumin Zhang	Optical Properties of HVPE Grown Fe-Doped GaN Substrates
PS1.04	Toshio Kitamura	Study of Manufacturing Process for Free-Standing GaN Substrates Grown by HVPE Method with Hybrid Tiling Technique
PS1.05	DoHun Kim	Improvement of Crystallinity of (11-22) GaN on Multi Point-Seed by Promotion of Lateral Growth Using the Na Flux Method
PS1.06	Zongliang Liu	Effect of Nitrogen-Doped Carbon Additives on the LPE-Growth of GaN Single Crystal Using the Na Flux Method
PS1.07	Tongbo Wei	High Quality Semipolar (10-1-3) GaN Grown on Carbon Nanotube Patterned Sapphire by Hydride Vapor Phase Epitaxy
PS1.08	Carsten Hartmann	Strongly Enhanced Deep UV Transparency of AlN Bulk Crystals Grown by Physical Vapor Transport
PS1.09	Young Kuk Lee	Ammonothermal Growth of Aluminum Nitride Crystals Employing Basic Mineralizer
PS1.10	John Farah	Rapid Thinning & Wafering of Wide Bandgap Substrates
PS1.11	Victor Gomez	Comparative Study of InGaN Layers Grown by PA-MBE on Si(111) Using Different Buffer Layers & Growth Conditions
PS1.12	Evan Clinton	High Growth Rate, Low Residual Doped Metal Modulated Epitaxy of GaN at ~10µm/hr
PS1.13	Evan Clinton	Thick, Rapidly Grown (1.8 µm/hr) In <sub>x</sub> Ga <sub>1-x</sub> N—Towards Templates for Optoelectronics
PS1.14	Lars Grieger	Fully Automated Measurement & Analysis of Reciprocal Space Maps
PS1.15	Rohit Pant	Reciprocal Space Mapping of InGaN Epilayers on Bare & Nitrided Si(111) by PAMBE
PS1.16	Yuxia Feng	Evolution of Anisotropic Lattice Misfit Strain of III-Nitrides on Si(110)
PS1.17	Shibin Krishna	Stress Relaxation via Defect Minimization in Epitaxial GaN Film on c-Sapphire Substrate Grown by Molecular Beam Epitaxy
PS1.18	Haiding Sun	Growth Mode of III-Nitride Materials on Nano-Patterned Sapphires by MBE
PS1.19	Henryk Turski	Growth of N-Polar GaN under N-Rich Conditions in Plasma-Assisted MBE
PS1.20	Sergei Novikov	Unintentional Boron Incorporation in GaN & AlGaIn Layers During Plasma-Assisted Molecular Beam Epitaxy Using Highly Efficient RF Plasma-Sources
PS1.21	Marc Hoffmann	Control of Doping & (Self-) Compensation in Highly Mg Doped GaN Grown by Metalorganic Vapor Phase Epitaxy
PS1.22	Felix Kaess	Suppression of Mg Migration & Surface Accumulation by Fermi Level Control in GaN Grown by MOCVD
PS1.23	Junyan Jiang	Study on Electrical Property, Wet Etching, & Strain State of Mg-Doped N-Polar GaN
PS1.24	Chih-Chung Yang	Mg Buildup, Memory, & Diffusion in MOCVD Growth of p-GaN
PS1.25	Ewa Grzanka	Properties of Semipolar GaN p-Type Layers—From Background Doping To Metal Contact Resistance
PS1.26	Akira Buma	Study on Microstructure & Thermal Stability of rf-plasma Nitridated α-(AlGa) <sub>2</sub> O <sub>3</sub> Grown by Mist-CVD
PS1.27	Kazutada Ikenaga	Regrowth of High-Al-Content AlGaIn & AlN on High-Quality AlN Template Fabricated by Annealing at 1700 °C under Nitrogen Ambient
PS1.28	Abheek Bardhan	Integration of Micron-Thick Crack-Free Al <sub>0.6</sub> Ga <sub>0.4</sub> N with Si(111) Substrate for Deep UV Photodetection
PS1.29	Jianpeng Cheng	Nanoscale Fissure Formation during Tensile Epitaxy of Hexagonal Nitride Semiconductor
PS1.30	Arne Knauer	Influence of Silicon Doping on Defects in MOVPE-Grown AlN/Sapphire Templates
PS1.31	Sebastian Tamariz Kaufmann	High Temperature Growth of AlN by Ammonia MBE on Si(111)
PS1.32	Xuqiang Shen	Thin AlN Films with High Quality Directly Grown on Si(110) Substrates by Metalorganic Chemical Vapor Deposition
PS1.33	Dabing Li	Growth of AlN on Sputtered AlN/Sapphire by High-Temperature MOCVD
PS1.34	Daiki Jinno	High Temperature Annealing of Sputtered AlN Buffer Layer on r-Plane Sapphire Substrate & its Effect on Crystalline Quality of a-Plane GaN
PS1.35	Tae-Yeon Seong	Effect of the <i>In Situ</i> Annealing of an <i>Ex Situ</i> Sputtered AlN Buffer Layer on the Crystal Quality of GaN Grown on Si Substrate
PS1.36	Yu Xu	Mechanically Transferrable AlN Films Grown on Graphene by HVPE
PS1.37	Jungyoung Jung	High Quality AlN Epi-Layer Grown by HVPE System
PS1.38	Jun Huang	Reduction of Threading Dislocation Densities in AlN/Sapphire Epilayers Grown by Hydride Vapor Phase Epitaxy
PS1.39	Quanzhong Jiang	Instability of Low-Temperature AlN during Metalorganic Vapour Phase Epitaxy for Potential Increase of Interfacial Thermal Resistance
PS1.40	Jongmyeong Kim	Study on Epitaxial Growth of AlN Layer on Si(111) Substrate by DC Magnetron Sputtering at Room Temperature
PS1.41	Daeyoung Moon	Study on Highly Polarized Photoluminescence Emission from c-Plane InGaIn/GaN Multiple Quantum Wells
PS1.42	Erkan Berkman	Analysis of Spatial Indium Incorporation in Green Emitting In <sub>x</sub> Ga <sub>1-x</sub> N Multi-Quantum Wells Grown by MOCVD
PS1.43	Tae-Hoon Chung	High Efficient InGaIn/GaN Blue Light-Emitting Diodes by Using the P-Type InGaIn Layer for V-Pit Passivation



ABSTRACT	PRESENTER	TITLE
PS1.44	Xiaobiao Han	Optical Properties of InGaN/GaN Multiple Quantum Wells Grown by Selective Area Epitaxy along Master Stripes with Modulation Stripes on Si(111) Substrate
PS1.45	Suman-Lata Sahonta	Phase Purity Analysis of MOVPE-Grown Cubic GaN Epilayers
PS1.46	Michael Deppe	Incorporation of Germanium for n-Type Doping of Cubic GaN
PS1.47	Chao Wu	Effects of Diffusion Length on Surface Roughness & Defects in Low-Temperature Growth of Gallium Nitride
PS1.48	Shugo Nitta	In-Line NH <sub>3</sub> Reactant Analysis on Nitride Semiconductor Metalorganic Vapor Phase Epitaxy via High-Resolution Mass Spectrometry
PS1.49	Yasuhiro Kusakabe	Improvement of GaN Regrowth by MOMB E using Low Pressure Nitrogen Microplasma
PS1.50	Yvon Cordier	Selective Epitaxy on Patterned Sapphire for High Quality Semipolar GaN Templates
PS1.51	Necmi Biyikli	Self-limiting Growth Optimization of Wurtzite GaN & InN Thin Films by Low-Temperature Plasma-Assisted Atomic Layer Deposition Utilizing Organo-Metallic Group-III Precursors
PS1.52	Necmi Biyikli	Optical Properties of GaN Thin Films Grown by Hollow-Cathode Plasma-Assisted Atomic Layer Deposition—Impact of Film Thickness
PS1.53	Xu Yang	The Influence of Residual Boron in Reactor on the Quality of GaN Crystal Grown via MOVPE
PS1.54	Baijun Zhang	Migration Characterizations of Ga & In Adatoms on Dielectric Surface in Selective Area Growth of MOVPE
PS1.55	Kentaro Nagamatsu	Decomposition of Trimethyl Gallium in a Metal Organic Vapor-Phase Epitaxy Reactor using an In-Line High-Resolution Gas Monitoring System
PS1.56	Dimitar Alexandrov	Low-Temperature Deposition of InN Layers on High-Temperature MOCVD Grown AlN Layers
PS1.57	Dimitar Alexandrov	Low-Temperature Epitaxial Deposition of InN Layers on ITO Glass Substrates
PS1.58	Barun Barick	Structural & Electronic Properties of InN Epilayer Grown on c-Plane Sapphire by CVD Technique
PS1.59	Hongwei Liang	High Resistivity GaN Layers with an InGaN Interlayer Grown by MOCVD
PS1.60	Ping Ma	Growth & Characterization of AlGaIn/GaN HEMT on SiC Substrate
PS1.61	Susumu Hatakenaka	The Mechanism of Strain Control for GaN on Si HEMTs with Fe-Doped GaN by Using Un-Doped GaN Interlayer
PS1.62	Yasushi Iyechika	AlGaIn Uniformity in HEMT Structure Grown on 200 mm Si Substrate by Fast Rotating Single-Wafer MOCVD Tool
PS1.63	Jie Zhang	High Mobility InAlGaIn/GaN Heterostructures Grown on Si Substrates Using Low-Temperature AlN Spacer Layer
PS1.64	Roy Chung	Investigation of Intermixing between GaN & 4H-SiC with Ultrathin AlN Grown by PAMBE for Hetero-Junction Device
PS1.65	Ahmad Shuhaimi	The Selective Nucleation Phenomena in Initial Growth of GaN on PSS
PS1.66	Ahmad Shuhaimi	Enhancement of Semipolar (11-22) GaN Grown on m-Plane Sapphire Substrate by MOCVD
PS1.67	Shunsuke Okada	Structural Study of GaN Grown on Nonpolar Bulk GaN Substrates with Trench Patterns
PS1.68	Yun Zhang	Overgrowth & Microstructural Investigation of Semi-Polar (11-22) GaN on Arrayed Micro-Rods with Different Diameters
PS1.69	Zheng Sun	GaN Growth on M-Plane SiC Substrate with an Ultrathin Interlayer
PS1.70	Kenji Iso	Quasi-Equilibrium Crystal Shape & Kinetic Wulff Plot for GaN Grown by Tri-Halide Vapor Phase Epitaxy Using GaCl <sub>3</sub>
PS1.71	Francisco Ramirez Gonzalez	Gallium Nitride Obtained from Gallium Arsenide Nitridation in a RTA System at Atmospheric Pressure
PS1.72	Pramod Reddy	Point Defect Control in III-Nitrides—Increasing the Defect Formation Energy by Defect Quasi Fermi Level (DQFL) Control
PS1.73	Franziska Beyer	Origin of Orange Color in Nominally Undoped HVPE GaN Crystals
PS1.74	Franziska Beyer	Deep Levels in Thick Nominally Un-Doped HVPE-GaN Layers
PS1.75	Matthias Lamprecht	Signatures of the Si Related Shallow DX State in a Defect Related PL Band at 2.4 eV in AlN
PS1.76	Friederike Zimmermann	Photoluminescence Study on GaN Grown by High Temperature Vapor Phase Epitaxy
PS1.77	William Willoughby	A Model for Photo-Absorption & Electron Capture in Compensated Be:GaN Substrates
PS1.78	Stefan Mohn	Photoluminescence of GaN Lateral Polarity Structures
PS1.79	Pierre Negri	3D Stress Characterization of Novel GaN Structures Using Raman Spectroscopy
PS1.80	Lorenzo Rigutti	Assessing Advantages & Limitations of Atom Probe Tomography for the Nanoscale Interpretation of the Optical Properties of III-Nitride Heterostructures
PS1.81	Ustun Sunay	Detection of Strain on the Mg Acceptor in GaN by Magnetic Resonance
PS1.82	Manolo Ramirez Lopez	Carbon-Induced Optical Quenching on Nitride Based High Electron Mobility Transistor
PS1.83	Maciej Matys	Characterization of Interface States from Frequency Dispersion in Capacitance-Voltage Curves of Al <sub>2</sub> O <sub>3</sub> /AlGaIn/GaN Heterostructures
PS1.84	Bobby Hancock	UV Micro-Raman & Photoluminescence Stress-Mapping on a GaN HEMT-on-Diamond Wafer
PS1.85	Min Khanal	Effects of Gamma-Ray Irradiation on Electronic Characteristics of AlGaIn/GaN Heterostructures
PS1.86	Dipankar Jana	A Fast & Non-Destructive Probing of 2-Dimensional Electron Gas in AlGaIn/GaN Heterostructures
PS1.87	Xiaoguang He	Electron Blocking by AlInN Back Barrier in GaN HEMT



ABSTRACT	PRESENTER	TITLE
PS1.88	Matthew Rosenberger	(LATE NEWS) Atomic Force Microscope Measurements of Thermomechanical and Inverse-Piezoelectric Strain in AlGaIn/GaN High Electron Mobility Transistors
PS1.89	Elke Meissner	Investigation of Structural Defects in GaN HEMT Layers, Relevant for the Electrical Performance & Reliability of the Devices
PS1.90	Eiji Kojima	Theoretical Investigation of GaN/SiC(0001) Band Offset
PS1.91	Thoria Baeraky	Microwave Effect on Nitride Semiconductors at High Temperature
PS1.92	Mariia Anikeeva	Indium Incorporation into (In,Ga)N/GaN Short Period Superlattices Studied by Transmission Electron Microscopy
PS1.93	Jeonghwan Jang	Study on Solid Phase Epitaxy of 3-Dimensional Al <sub>2</sub> O <sub>3</sub> Membrane Structure on Sapphire Substrate
PS1.94	Mufasila Mumthaz Muhammed	Carrier Dynamics of High-Quality InGaIn/GaN Quantum Wells Grown on (-201) $\beta$ -Ga <sub>2</sub> O <sub>3</sub> Substrates for Vertical Devices by Time-Resolved Photoluminescence
PS1.95	Minkwan Kim	Nanoscope Study of InGaIn/GaN-Based Light-Emitting Diodes Using Near-Field Scanning Optical Microscopy & Cathodoluminescence
PS1.96	Alec Fischer	Origin of High Hole Concentrations in Mg-Doped GaN Films
PS1.97	Alec Fischer	The Band Gap Bowing of Thick InGaIn Alloys
PS1.98	Hoi Wai Choi	Indium-Content Dependent Strain-Relaxation Mechanisms in InGaIn/GaN Micropillars
PS1.99	Juras Mickevicius	Influence of Growth Temperature on Emission Properties of InGaIn/GaN MQWs Deposited on Strain-Relieving Buffer
PS1.100	F.C.P. Massabuau	Preventing Trench Defect Formation in InGaIn Quantum Wells Using Hydrogen
PS1.101	F.C.P. Massabuau	Characterization of InGaIn Quantum Well Interface by X-Ray Techniques
PS1.102	F.C.P. Massabuau	Impact of InGaIn Composition on Carrier Localization at Dislocations
PS1.103	Weiguo Hu	Stress Tuned Carrier Dynamic Process in InGaIn/GaN Quantum Well & Its Application in Visible Light Communication
PS1.104	Kazimieras Nomeika	Carrier Diffusivity as the Key Parameter Behind the Peak Quantum Efficiency in (In,Ga)N Quantum Structures
PS1.105	Aniela Dunn	Investigation of Carrier Localization in InGaIn/GaN Multiple Quantum Well Structures using Terahertz Spectroscopy
PS1.106	James Griffiths	Nanocathodoluminescence Reveals the Mitigation of the Stark Shift in InGaIn Quantum Wells by Silicon Doping
PS1.107	Yu-Ming Chiu	Structure & Photoluminescence Properties of Flower-Like Spiral AlN Micro-Crystal Array
PS1.108	Robert Rounds	Thermal Conductivity of Bulk AlN
PS1.109	Houston Dycus	Direct Determination of Structure & Chemistry in Aluminum Nitride Based Device Structures Using Scanning Transmission Electron Microscopy
PS1.110	Shun Washiyama	Misfit Strain Relaxation of High Al-Content AlGaIn on AlN/Sapphire
PS1.111	Shun Washiyama	Hillock Formation on High Al-content AlGaIn Epitaxial Layers Grown on Single Crystal AlN Substrates
PS1.112	Bo Monemar	Low Temperature Photoluminescence in Highly Si-Doped Al <sub>x</sub> Ga <sub>1-x</sub> N with x < 0.09
PS1.113	Joshua Harris	Compensation in Silicon-Doped AlN & AlGaIn
PS1.114	Pietro Pampili	Evidence of Room-Temperature Hopping Conduction in Aluminum-Rich AlGaIn:Si
PS1.115	Caroline Lim	Effect of Si & Ge Doping in GaN/AlGaIn Multi-Quantum-Wells with Intersubband Transitions
PS1.116	Akhil Ajay	Ge & Si Dopants for GaN/AlN MQWs in the Short Wavelength Infrared—Case of Nanowires & 2D Layers
PS1.117	Weiyang Wang	Enhancement of Transverse-Electric Polarized Optical Emission in Staggered AlGaIn Quantum Wells
PS1.118	Thomas Schratwieser	Time-Resolved Cathodoluminescent & Photoluminescent Measurement of a Deep-UV AlGaIn Multiple Quantum Well Heterostructure
PS1.119	Idris Aja	Improved Radiative Recombination of GaN/AlGaIn MWQ on Transparent (-201) $\beta$ -Ga <sub>2</sub> O <sub>3</sub> Substrate
PS1.120	Chenguang He	Mechanism of Stress-Driven Composition Evolution During Hetero-Epitaxy in a Ternary AlGaIn System
PS1.121	Chenguang He	Free & Bound Excitonic Effects in Al <sub>0.5</sub> Ga <sub>0.5</sub> N/Al <sub>0.35</sub> Ga <sub>0.65</sub> N MQWs with Different Si-Doping Levels in the Well Layers
PS1.122	Zydrunas Podlipskas	Two-Way Connection between Quality of Layers in AlGaIn/GaN Template
PS1.123	Wanxin Zhu	Selective Excitation of Emission Centers in of GaN/Eu-Doped GaN Multiple-Nanolayer Structures LED—Nanoscale Design of Active Layer for Dynamical Control of Injection Charges
PS1.124	Detlef Hommel	X-Ray Absorption Fine Structure (XAFS) & Density Functional (DFT) Investigation of Defects in Epitaxial GaMnN Layers
PS1.125	Akhilesh Singh	Hysteretic Photochromic Switching of Eu-Mg Defects in GaN—The Ninja Experiments
PS1.126	Pratim Saha	Radiative Atomic Transition from Sparsely Rare Earth Doped GaN
PS1.127	Shengxiang Jiang	Study of Deep Level Defects in GaN:Mn Grown by Metalorganic Chemical Vapor Deposition
PS1.128	Muhammad Maqbool	Super-Luminescence in Wide Bandgap Nitride Semiconductors
PS1.129	Yulong Feng	Study on Modulation Bandwidth for GaN-Based Plasmonic LED
PS1.130	Jochen Bruckbauer	Optical Properties of Semipolar (11-22) AlGaIn on GaN Microrod Templates
PS1.131	Philipp Ebert	Polarity Dependent Fermi Level Pinning on GaN m-Plane Surfaces
PS1.132	Richard Smith	A Confocal Photoluminescence Investigation of Basal Plane Stacking Faults (BSFs) in (11-22) Semi-Polar InGaIn/InGaIn Quantum Wells on Overgrown Semi-Polar GaN
PS1.133	Carol Trager-Cowan	Hyperspectral Cathodoluminescence Imaging of Semi-Polar (11-22) GaN



ABSTRACT	PRESENTER	TITLE
PS1.134	Rohit Pant	Investigation of Directional-Polarization with Photoelectric Effect in Rotated IDEs on Non-Polar GaN Thin Films
PS1.135	Rohit Pant	Effect of Dislocations on Non-Polar a-GaN Schottky Photodetectors Aligned along In-Plane Polarized c-Direction
PS1.136	Plamen Paskov	Multi-Color Emission from InGaN/GaN Quantum Wells on Polar & Semipolar Facets Grown by Lateral Sidewall Epitaxy
PS1.137	Jie Chen	Schottky Contacts on r-Plane & c-Plane of Truncated Pyramid GaN Grown by Selective Area MOVPE
PS1.138	Stephen Church	Influence of Hexagonal Inclusions & Stacking Faults on the Photoluminescence Spectrum of Cubic GaN Grown via MOCVD upon Large Area 3C-SiC/Si Substrates
PS1.139	S.C. Lee	Strain Relief of Epitaxial Cubic Phase GaN under Uniaxial Stress on a Nanoscale V-Grooved Si(001)
PS1.140	Yutian Cheng	Anisotropic Fracture Toughness of Bulk GaN & Its Guidance on Self-Separation of Thick GaN from Sapphire Substrate
PS1.141	Marco Jimenez-Rodriguez	Effect of AlN Buffer Layer on the Properties of AlInN Layers Grown on Si(111) by RF-Sputtering
PS1.142	Marco Jimenez-Rodriguez	Nonlinear Optical Measurements at Telecom Wavelength of InN-Thin-Films grown by MBE
PS1.143	Izabela Gorczyca	Similarities of the Band Gaps of GaN/AlN & ZnO/MgO Short Period Superlattices
PS1.144	Shiyu Chen	Cation-Mutation Design of Quaternary Nitride Semiconductors Lattice-Matched to GaN
PS1.145	Jonathan Sculley	Monte Carlo Simulation of the Gunn Effect in AlGaIn/GaN 2DEG
PS1.146	Fetene Yigletu	On the Compact Modeling of CAVETs for Circuit Simulation
PS1.147	Sandeep Sankaranarayanan	Giant Peak to Valley Ratio in a GaN Based Tunnel Diode with Barrier Width Modulation
PS1.148	Angela Dyson	Monte-Carlo Simulation of a GaN Gunn Diode
PS1.149	Jonathan Marini	Design & Simulation of III-Nitride Based Photocathode
PS1.150	Christina Jones	Impact of Alloy Fluctuations on Radiative Recombination Rates & Efficiency of InGaIn Quantum Wells
PS1.151	Iskander Batyrev	Simulations of Dislocation Core in Pyramidal Plane of n- & p- Doped Wurtzite GaN & AlGaIn
PS1.152	Assa Aravindh Sasikala Devi	<i>Ab Initio</i> Investigations on the Structural & Electronic Properties of GaN in the Presence of a 45° Grain Boundary
PS1.153	Toru Akiyama	Effects of Atomic Arrangements on Electronic Structure of Threading Dislocations in III-Nitride Alloy Semiconductors—A First-Principles Study
PS1.154	Bertrand Rouet-Leduc	Optimisation of GaN LEDs & the Reduction of Efficiency Droop Using Active Machine Learning
PS1.155	Yuh-Renn Wu	Modeling & Optimization of InGaIn Blue Light Laser Diodes
PS1.156	Ricardo Leon Restrepo Arango	The Second & Third Harmonic Generation Coefficients in InGaIn/GaN Single Quantum Wells
PS1.157	Antonio Ferreira da Silva	First Principles Study of the Optical Properties of Indium Oxynitride
PS1.158	Naoki Umehara	Film Formation Process of Hexagonal Boron Nitride on a c-Plane Sapphire Substrate Grown by Low Pressure Chemical Vapor Deposition
PS1.159	Thushan Wickramasinghe	Prospect of Developing ac-Driven Deep Ultra-Violet Electroluminescence Devices Based on Boron Nitride
PS1.160	Thi-Quynh-Phuong Vuong	Phonon Sidebands in the Emission Spectrum of a Deep Level in Hexagonal Boron Nitride
PS1.161	Shuo Wang	Crystal Structure of BAlN Thin Films—Effect of Boron Concentration in the Gas Flow
PS1.162	Alexander Franke	Nitride Micro-Columnar DBR & Monolithic Microcavities for the UV-C Spectral Range
PS1.163	Swanand Solanke	Large Area MoS <sub>2</sub> -AlGaIn Heterojunction towards Dual Band Near IR & Solar Blind Deep UV Photodetector
PS1.164	Shulin Gu	Ga Diffusion Induced Changes of GaN Based FM/NMS Heterostructures
PS1.165	Lukasz Janicki	Optical Spectroscopy & Hall Measurements of Ambient Sensitivity of Ga- & N-polar GaN UN+ & HEMT Structures
PS1.166	Lukasz Janicki	Fermi Level Position in GaMnN Studied by Contactless Electoreflectance
PS1.167	Yuki Kurisaki	Theoretical Investigation of Nitride Nanowire-Based Quantum-Shell Lasers
PS1.168	Alexander Usikov	Investigation of Water Splitting Using III-N Structures
PS1.169	Purushothaman Varadhan	Molecular Level Surface Passivation for Enhanced Photo-Electrochemical Water Splitting in III-Nitride Nanowires
PS1.170	Tohru Honda	Fabrication of Vertical-Injection Type GaN-Based MIS Diodes with Near UV Transparent Oxide Electrodes
PS1.171	Grant Junno	Synthesis of ZnSnN <sub>2</sub> via a Plasma-Assisted Vapor-Liquid-Solid Method
PS1.172	Kathleen Kash	Characterization of ZnGe <sub>x</sub> Sn <sub>1-x</sub> N <sub>2</sub> Alloys Synthesized by Vapor-Liquid-Solid Growth
PS1.173	Muhammad-Sadeeq Balogun	Fe <sub>3</sub> N Nanoparticles on a Carbon Cloth with High-Power Density for Flexible Lithium Ion Batteries
PS1.174	Angela Fioretti	Defeating N-Type Degeneracy in Zinc Tin Nitride via Off-Stoichiometry & Post-Growth Annealing
PS1.175	Angela Fioretti	Using Native Point Defects to Control Bipolar Self-Doping in Copper Nitride
PS1.176	Tetyana Torchynska	Variety of Light Emitting Mechanisms in Si-Rich-SiN <sub>x</sub> Films versus Silicon Nitride Stoichiometry



# TUESDAY PROGRAM AT-A-GLANCE

\* Invited Talk

F0.2: Novel Materials & Devices II: Nitride MEMS & Other Novel GaN Device Architectures				Azalea/Begonia
9:00 am	Marc Faucher	*F0.2.01	A GaN Technology for High-Performance MEMS Accelerometers	
9:30 am	Hoi Wai Choi	F0.2.03	Monolithically-Integrated GaN Photonic Systems	
9:45 am	Sween Butler	F0.2.04	Second Harmonic Generation from a Three Dimensional GaN Micro-Cavity Emitter	
10:00 am	Can Bayram	F0.2.05	Polarization-Free Integrated Gallium Nitride Photonics	
10:15 am	Break			
A1.2: Bulk Growth II: Bulk (Al,Ga)N Growth & Optoelectronic Devices on Bulk AlN Substrates				Azalea/Begonia
10:45 am	Toru Kinoshita	*A1.2.01	Recent Progress in the Growth of AlN by HVPE on Native AlN Substrates	
11:15 am	Jianfeng Chen	A1.2.02	2-Inch AlN Single Crystal Growth with Low UV Absorption	
11:30 am	Carsten Hartmann	A1.2.03	Epitaxial Growth and Characterization of Deep UV AlGaIn Devices on Bulk AlN Substrates	
11:45 am	Simon Fleischmann	A1.2.04	AlGaIn Layers Grown on Patterned Sapphire by HVPE	
12:00 pm	Sakari Sintonen	A1.2.05	Dislocation Generation during Homoepitaxial Growth of Bulk AlN by Physical Vapour Transport	
12:15 pm	Taishi Kimura	A1.2.06	Nanopipe Formation via a Boron Impurity Segregation in GaN Grown by Halogen-Free Vapor Phase Epitaxy	
E0.2: Nanostructures II: GaN Nanostructure Synthesis & Characterization				Camellia/Dogwood
8:30 am	Achim Trampert	*E0.2.01	Advanced Nanofocus X-Ray Diffraction and Electron Microscopy Study of 3D GaN Nanostructures	
9:00 am	Ana Cros	E0.2.02	GaN Nanowire p-n Junctions Investigated by Kelvin Probe Force Microscopy	
9:15 am	Jumpei Kamimura	E0.2.03	P-Type Doping of GaN Nanowires Characterized by Photoelectrochemical Measurements	
9:30 am	Matt Brubaker	E0.2.04	Selective Area Growth and Optical Characterization of Ordered GaN Nanowire Arrays	
9:45 am	Mariia Rozhavskaia	E0.2.05	MOCVD of GaN Micro- and Nanowires on Sapphire Substrates Initiated by Ti Thin Film	
10:00 am	Gabriele Calabrese	E0.2.06	GaN Nanowires Free of Inhomogeneous Strain Grown on a Metallic TiN Film	
10:15 am	Break			
10:45 am	Juergen Christen	*E0.2.07	STEM-CL Analysis of 3D GaN Nanostructures	
11:15 am	Blandine Alloing	E0.2.08	Ultra-Thin GaN-Based Nanowires Fabricated via a Selective Area Sublimation Approach	
11:30 am	Andreas Liudi Mulyo	E0.2.09	Growth of Self-Organized Vertical GaN Nanocolumns Utilizing AlN as Nucleation Sites on Single Layer Graphene/Silica Glass by Molecular Beam Epitaxy	
11:45 am	Vishnuvarthan Kumaresan	E0.2.10	Epitaxy of GaN Nanowires on Graphene	
12:00 pm	Sergio Fernandez-Garrido	E0.2.11	Molecular Beam Epitaxy of GaN Nanowires on Graphene Layer Structures Synthesized on SiC	
12:15 pm	Bruno Daudin	E0.2.12	Comprehensive Study of the Growth Mode of InGaIn Nanoparabolas	
B1.2: Visible Devices II: Long Wavelength Emitters				International Center
8:30 am	Matthias Auf der Maur	*B1.2.01	Green Gap and Droop in InGaIn/GaN LEDs—The Role of Random Alloy Fluctuations	
9:00 am	Abdullah Alhassan	B1.2.02	High Luminous Efficacy InGaIn/AlGaIn LED in the Green Spectral Region	
9:15 am	Markus Pristovsek	B1.2.03	What Limits the Efficiency of Green (0001) InGaIn LEDs	
9:30 am	Thi Huong Ngo	B1.2.04	The Comparative Internal Quantum Efficiency and Thresholds for Auger Recombination in Green, Yellow and Red InGaIn-Based Light Emitters Grown along the Polar Direction	
9:45 am	David Wallis	B1.2.05	Cubic InGaIn MQWs for Efficient Green LEDs	
10:00 am	Jianping Liu	B1.2.06	Suppressing the Incorporation of Carbon Impurity in AlGaIn:Mg for Green LDs with Low Operation Voltage	
10:15 am	Break			
B1.3: Visible Devices III: Visible LEDs & LDs				International Center
10:45 am	Thomas Frost	*B1.3.01	InGaIn/GaN Quantum Dot Visible Lasers	
11:15 am	Jonathan Wierer	B1.3.02	Ultra-Efficient Solid-State Lighting Using III-Nitride Quantum Dots	
11:30 am	Nan Guan	B1.3.03	Flexible White Light Emitting Diodes Based on Nitride Nanowires and Nanophosphors	
11:45 am	Thierry Guillet	B1.3.04	Nitride-on-Silicon Microdisk Lasers Covering the Blue to UV-C Spectral Range	
12:00 pm	Danqing Wang	B1.3.05	Ultra-Low-Threshold Quantum Dot Micro-Ring Lasers	
12:15 pm	Ge Yuan	B1.3.06	III-Nitride Laser Diode with Nanoporous GaN as Cladding Layers	
D1.2: Materials Characterization II: Characterization of InGaIn Films & QWs				International North
8:30 am	Stefan Schulz	*D1.2.01	Electronic and Optical Properties of c- and m-Plane InGaIn Quantum Wells—Influence of Structural Inhomogeneities and Random Alloy Fluctuations	
9:00 am	Saulius Marcinkevicius	D1.2.02	Carrier Diffusion in m-Plane InGaIn Single Quantum Well Measured by Dual Mode Scanning Near-Field Optical Microscopy	
9:15 am	Antonio Llopis	D1.2.03	Anisotropic Photo-Induced Bleaching of the Polarization-Dependent Absorption in a Strain-Compensated a-Plane InGaIn/AlGaIn Superlattice	



9:30 am	Christian Mounir	D1.2.04	Influence of Inhomogeneous Broadening on the Optical Polarization Properties of m-Plane, (20-2-1) and (20-21) InGa <sub>N</sub> Quantum Wells
9:45 am	Gordon Schmidt	D1.2.05	Probing the Inhomogeneity of In-Rich InGa <sub>N</sub> Layers on Top of InGa <sub>N</sub> Compositional Grades by Nanoscale Cathodoluminescence
10:00 am	Joanna Moneta	D1.2.06	Strain Relaxation via (a+c)-Type Misfit Dislocation Formation in InGa <sub>N</sub> Epilayers Grown on (0001) GaN by Plasma-Assisted Molecular Beam Epitaxy
10:15 am	Break		
<b>D1.3: Materials Characterization III: Characterization of (Al,Ga,In)N Films &amp; QWs</b>			<b>International North</b>
10:45 am	Shigetaka Tomiya	*D1.3.01	Structural Characterization of GaInN Quantum Wells using Transmission Electron Microscope and Atom Probe Tomography
11:15 am	Grzegorz Staszczak	D1.3.02	Bandgap Dependence of InGa <sub>N</sub> /Ga <sub>N</sub> Short Period Superlattices Grown by Metal-Organic Vapor Phase Epitaxy (MOVPE)
11:30 am	Tobias Schulz	D1.3.03	Limitations for Indium Incorporation in Coherently Grown (In,Ga) <sub>N</sub> Layers
11:45 am	Julita Smalc-Koziorowska	D1.3.04	Mechanism of Thermal Degradation of InGa <sub>N</sub> Quantum Wells
12:00 pm	Bastien Bonaf	D1.3.05	Atom Probe Tomography Characterization of Alloy Fluctuations in InAlN Grown by Plasma Assisted Molecular Beam Epitaxy
12:15 pm	Ryoma Seiki	D1.3.06	Local Structural Analysis around In Atoms in Al <sub>0.82</sub> In <sub>0.18</sub> N alloy by Using X-Ray Absorption Fine-Structure Measurements
<b>A2.2: Epitaxial Growth II: Epitaxial Growth for UV Emitters</b>			<b>International South</b>
8:30 am	Zlatko Sitar	*A2.2.01	Progress and Remaining Challenges in UVC Laser Development
9:00 am	Maryam Khalilian	A2.2.02	AlGa <sub>N</sub> Material Structures for UV-LEDs Based on Dislocation-Free Ga <sub>N</sub> Platelets
9:15 am	Mohammad Tollabi Mazraehno	A2.2.03	Effect of Optimized Buffers on Electro-Optical Characteristics of AlGa <sub>N</sub> -Based Deep-Ultraviolet PIN Photodetectors
9:30 am	Takuma Matsumoto	A2.2.04	Growth of Deep-UV (11-22) AlGa <sub>N</sub> Quantum Wells on m-Plane (1-100) Sapphire Substrates
9:45 am	Oliver Rettig	A2.2.05	Boron Containing AlGa <sub>N</sub> Layers for UV Lighting
10:00 am	Ronny Kirste	A2.2.06	Ge Doping of AlGa <sub>N</sub> —Growth, Characterization and Applications
10:15 am	Break		
<b>A2.3: Epitaxial Growth III: Growth of Semipolar &amp; Cubic GaN</b>			<b>International South</b>
10:45 am	Jung Han	*A2.3.01	Progress in Heteroepitaxy of Semipolar Ga <sub>N</sub> on Sapphire
11:15 am	Frank Bertram	A2.3.02	Effect of Nano-Porous SiNx Interlayer on Propagation of Extended Defects in Semi-Polar (11-22)-Orientated Ga <sub>N</sub>
11:30 am	Michel Khoury	A2.3.03	Defect Reduction via Laterally Induced Growth of Semipolar (10-11) Ga <sub>N</sub> on Patterned Silicon Substrates
11:45 am	Kenjiro Uesugi	A2.3.04	Reduction of Basal Plane Stacking Faults in (11-22) Semipolar InGa <sub>N</sub> /Ga <sub>N</sub> MQWs Fabricated on Patterned Si(113) Substrates by Introducing AlGa <sub>N</sub> Barrier Layers
12:00 pm	Ferdinand Scholz	A2.3.05	Investigations about Parasitic n-Type Doping in Semipolar Ga <sub>N</sub>
12:15 pm	Lok Yi Lee	A2.3.06	Structural and Morphological Characterisation of Cubic Ga <sub>N</sub> Grown on 3C-SiC/Si Substrates
<b>C1.1: RF/mm Wave Devices I: Electronic Devices for RF Applications &amp; Late News</b>			<b>Narcissus/Orange Blossom</b>
8:30 am	Peter Brueckner	*C1.1.01	High Frequency Ga <sub>N</sub> HEMTs and MMICs with AlN-Interlayer Epitaxy
9:00 am	Sanyam Bajaj	C1.1.02	Ultra-Wide Bandgap AlGa <sub>N</sub> Channel MISFET with Low-Resistance Ohmics
9:15 am	Junji Kotani	C1.1.03	Control of Polarization Charges for Leakage Current Reduction in InAlN/AlN/Ga <sub>N</sub> Heterostructures with <i>In Situ</i> AlN Cap
9:30 am	Yufei Wu	C1.1.04	Anomalous Source-Side Degradation of InAlN/Ga <sub>N</sub> HEMTs under ON-State Stress
9:45 am	Weichuan Xing	C1.1.05	Planar-Nanostructure Channel InAlN/Ga <sub>N</sub> HEMTs on Si with Improved gm and FT Linearity
10:00 am	Wenwen Li	C1.1.06	(LATE NEWS) Design and Fabrication of Self-Aligned Ga <sub>N</sub> Static Induction Transistors
10:15 am	Break		
<b>C0.2: Electronic Devices II: Devices for Power Electronics, Traps &amp; Dielectrics</b>			<b>Narcissus/Orange Blossom</b>
10:45 am	Hiroji Kawai	*C0.2.01	Low-Cost High-Voltage Ga <sub>N</sub> Lateral-Superjunction Power Transistors
11:15 am	Ben Rackauskas	C0.2.02	Processes behind Suppressed Current Collapse Buffer Architectures
11:30 am	Shlomo Mehari	C0.2.03	Identification of Electron Trap Energy at Different Spatial Locations and Dynamics of Charge Redistribution in AlGa <sub>N</sub> /Ga <sub>N</sub> HEMT Structures
11:45 am	Milan Tapajna	C0.2.04	On the Origin of Surface Donors in AlGa <sub>N</sub> /Ga <sub>N</sub> Metal-Oxide-Semiconductor Heterostructures with Al <sub>2</sub> O <sub>3</sub> Gate Dielectric—Correlation of Electrical, Structural, and Chemical Properties
12:00 pm	Hong Zhou	C0.2.05	AlGa <sub>N</sub> /Ga <sub>N</sub> MOSHEMT with POUT=4.18 W/mm at f=35 GHz Enabled by Atomic Layer Epitaxy MgCaO Dielectric
12:15 pm	Jun-Hyeok Lee	C0.2.06	Effect of Proton Irradiation on the Characteristics of AlGa <sub>N</sub> /Ga <sub>N</sub> MISHEMT—Comparison between Al <sub>2</sub> O <sub>3</sub> and Si <sub>3</sub> N <sub>4</sub> Gate Insulator



B3.2: Photodetectors, Photovoltaics, Intersubband Devices II: Photovoltaics & Photodetectors II				Azalea/Begonia
2:00 pm	Evan Clinton	B3.2.01	High Indium-Content MBE-Grown InGa <sub>N</sub> Solar Cells	
2:15 pm	Xuanqi Huang	B3.2.02	Theoretical Study on Efficiency Limits and Loss Analysis for Single-Junction InGa <sub>N</sub> Solar Cells Using a Semi-Analytical Model	
2:30 pm	Szymon Grzanka	B3.2.03	Nitride Photovoltaic—Exploring the Concept	
2:45 pm	Govind Gupta	B3.2.04	Ultrafast Indium Nitride Based VIS-NIR Photo-Detector	
3:00 pm	Shashwat Rathkantiwar	B3.2.05	Record High Responsivity in III-Nitride Solar Blind MSM Photodetectors	
3:15 pm	Moritz Brendel	B3.2.06	Impact of Internal Interfaces on AlGa <sub>N</sub> Metal-Semiconductor-Metal Photodetectors	
3:30 pm	Anisha Kalra	B3.2.07	Highest Responsivity in III-Nitride sub-260 nm Photodetectors	
3:45 pm	Break			
F0.3: Novel Materials & Devices III: Epitaxial Lift Off & Group-V Alloys				Azalea/Begonia
4:15 pm	Patrick Fay	*F0.3.01	GaN-Based Epitaxial Lift-off for Device Applications	
4:45 pm	Suresh Sundaram	F0.3.02	Realization of GaN, InGa <sub>N</sub> /GaN MQW and Semi-Bulk Based PIN Structures on the Ultrathin 2D Layered h-BN for Simple Mechanical Lift-Off	
5:00 pm	Takao Miyajima	F0.3.03	Determination of the Site of Sb Occupation in MOCVD-Grown GaN <sub>1-x</sub> Sb <sub>x</sub> Using X-Ray Absorption Fine-Structure Measurements	
5:15 pm	Fung Sing Choi	F0.3.04	Nanoscale Electrical Characterisation of GaNAs/GaN PN Junction Diode	
5:30 pm	Louis Guido	F0.3.05	Behavior of Arsenic in GaN at Densities Ranging from Isovalent Doping to Dilute Ternary Alloys	
5:45 pm	Chee-Keong Tan	F0.3.06	How Can Dilute-Anion III-Nitride Be Used for Light Emitters	
D2.2: Theory & Simulation II: Theory: Carrier Localization, Ordering Phenomena & Crystal Growth/ Radiative & Non-Radiative Processes in Optoelectronic Devices				Camellia/Dogwood
2:00 pm	Marcel Filoche	*D2.2.01	A New Approach to Carrier Localization in Disordered Random Alloy Structures	
2:30 pm	Liverios Lymperakis	*D2.2.02	Ordering Phenomena in InGa <sub>N</sub> Alloys—An <i>Ab-Initio</i> Thermodynamics Study	
3:00 pm	Kazuki Sekiguchi	D2.2.03	Consideration of MOVPE Growth Process of GaN by First Principles Calculations and Thermodynamic Analysis	
3:15 pm	Akira Kusaba	D2.2.04	Influence of Growth Orientation on Driving Force for InN Deposition by MOVPE	
3:30 pm	Takahiro Kawamura	D2.2.05	First-Principles Study of Surface Phase Diagrams of GaN(0001) and (000-1) under the Oxide Vapor Phase Epitaxy Growth Conditions	
3:45 pm	Break			
4:15 pm	Sergey Karpov	*D2.2.06	Radiative and Non-Radiative Processes in InGa <sub>N</sub> -Based LEDs	
4:45 pm	Emmanouil Kioupakis	*D2.2.07	Role of Auger Recombination and Extreme Quantum Confinement in Nitrides	
5:15 pm	Nathan Young	D2.2.08	Electrical Properties of III-Nitride LEDs—Recombination-Based Injection Model and Theoretical Limits to Electrical Efficiency and Electroluminescent Cooling	
5:30 pm	Karan Mehta	D2.2.09	Solutions to Carrier Leakage in III-N Based Light Emitters by Numerical Simulation	
5:45 pm	Bei Ma	D2.2.10	Simulation of Carrier-Exciton-Phonon Dynamics in GaN in Non-Equilibrium State	
B2.2: UV Devices II: UV LEDs				International Center
2:00 pm	Cyril Pernot	*B2.2.01	Status of DUV LED on Sapphire and Their Applications	
2:30 pm	Yoshihiko Sakane	B2.2.02	Underfilling and Encapsulation for AlGa <sub>N</sub> -Based DUV-LED	
2:45 pm	Donghyun Lee	B2.2.03	Improved Performance of AlGa <sub>N</sub> -Based Deep Ultraviolet Light-Emitting Diodes with Nano-Patterned AlN/Sapphire Substrates	
3:00 pm	Michael Heuken	B2.2.04	Close Coupled Showerhead MOCVD Tool for AlGa <sub>N</sub> UVC LEDs	
3:15 pm	Frank Mehnke	B2.2.05	Development of Deep UV LEDs for Nitrogen Oxide Sensing	
3:30 pm	Chen-Sheng Lin	B2.2.06	Efficient UV Emission from Simple Tunneling MIS Diodes	
3:45 pm	Break			
B2.3: UV Devices III: UV Lasers & Lasing & Late News				International Center
4:15 pm	Noble Johnson	*B2.3.01	Toward Deep-UV AlGa <sub>N</sub> -Based Lasers via Electron-Beam Excitation	
4:45 pm	Carsten Netzel	B2.3.02	Opposing Approaches for Low Threshold in AlGa <sub>N</sub> -Based UV-C Laser—High Internal Quantum Efficiency vs Homogeneity	
5:00 pm	Songrui Zhao	B2.3.03	AlGa <sub>N</sub> Nanowire Deep UV LEDs and Lasers Operating Below 240 nm	
5:15 pm	Shuhei Ichikawa	B2.3.04	Stimulated Emission at 250 nm from Optically-Pumped Semipolar (1-102) AlGa <sub>N</sub> /AlN Quantum Wells	
5:30 pm	Haiding Sun	B2.3.05	Observation of Stimulated Emission of AlGa <sub>N</sub> -Based GRINSCH Structures Grown by MBE Emitting in Deep UV Spectrum	
5:45 pm	Dorian Alden	B2.3.06	Second Harmonic Generation of UV Laser Light in AlN Periodic Lateral Polar Structures	
6:00 pm	Burhan SaifAddin	B2.3.07	(LATE NEWS) Epi-Transfer Technology for High EQE UV LEDs Grown on SiC	
D1.4: Materials Characterization IV: Atomic Structure & Dislocation Effects & Late News				International North
2:00 pm	Colin Humphreys	*D1.4.01	The Atomic Structure of Polar and Non-Polar InGa <sub>N</sub> Quantum Wells Revealed by Combining Different Microscopy and Spectroscopy Methods	
2:30 pm	Frank Bertram	D1.4.02	Pronounced Blue-Shift at Threading Dislocations in a Thick, Nanostripe-Patterned InGa <sub>N</sub> /GaN MQW Stack Directly Evidenced by Nano-Cathodoluminescence	



2:45 pm	F.C.P. Massabuau	D1.4.03	A Comparative Study of the Optoelectronic Properties of Dislocations in AlGaIn and InGaIn
3:00 pm	M. Nouf-Alleghiani	D1.4.04	Quantitative Analysis of Threading Dislocations in Si-Doped Low Resistivity AlGaIn Layers Using Electron Channeling Contrast Imaging
3:15 pm	Shigeyoshi Usami	D1.4.05	Effect of Dislocations on the Growth of p-Type GaN and Device Characteristics
3:30 pm	Anna Kafar	D1.4.06	(LATE NEWS) Spontaneous and Stimulated Emission in InGaIn Edge Emitters and Their Competition with Auger Processes
3:45 pm	Break		
<b>D1.5: Materials Characterization V: Characterization of GaN &amp; InN</b>			<b>International North</b>
4:15 pm	Kazunobu Kojima	D1.5.01	Quantifying Absolute Value of Quantum Efficiency of Radiation in High Quality GaN Single Crystals
4:30 pm	Sami Suikonen	D1.5.02	Infrared Absorption of Hydrogen-Related Defects in Ammonothermal GaN
4:45 pm	Jaime Freitas	D1.5.03	Optical and Electronic Properties HVPE GaN Wafers with Improved Crystallinity
5:00 pm	Michael Slomski	D1.5.04	Thermal Conductivity of Bulk GaN Grown by HVPE—Effect of Si Doping
5:15 pm	Qingbin Ji	D1.5.05	Raman Scattering Study of the High-Pressure Wurtzite to Rocksalt Phase Transition of GaN Grown on Serpentine Channel Patterned Sapphire Substrate
5:30 pm	Masataka Imura	D1.5.06	Surface and Bulk Electronic Structures of Heavily Mg-Doped InN Epilayer by Hard X-Ray Photoelectron Spectroscopy
5:45 pm	Holger Eisele	D1.5.07	Tunneling Spectroscopy at Clean Non-Polar InN Surfaces—Absence of Electron Accumulation
<b>A2.4: Epitaxial Growth IV: Growth of Light Emitters &amp; (In,Ga)N</b>			<b>International South</b>
2:00 pm	Yongjo Park	*A2.4.01	Characteristics of GaN-Based LED on Alumina Cavity Engineered Sapphire Substrate
2:30 pm	John Howell-Clark	A2.4.02	Polarization Control for Direct Emitting LEDs across the Visible Spectrum—Nanopatterning and Cubic Structure Growth
2:45 pm	Xiaohui Feng	A2.4.03	Grouped and Multistep Nanoheteroepitaxy—Towards High-Quality GaN on Quasi-Periodic Nano-Mask
3:00 pm	Shahab Shervin	A2.4.04	Direct Growth of Single-Crystal-Like III-Nitride Structures on Metal Tape for Flexible Wide-Bandgap Semiconductor Devices
3:15 pm	Karine Hestroffer	A2.4.05	Compositionally Graded InGaIn Layers on Vicinal N-Face GaN Substrates
3:30 pm	Takuya Ozaki	A2.4.06	Compositional Pulling Effect of InGaIn Films Grown on ScAlMgO <sub>4</sub> (0001) Substrates by Metal-Organic Vapor Phase Epitaxy
3:45 pm	Break		
<b>A2.5: Epitaxial Growth V: Growth for Electronic Devices &amp; Basic Growth Studies</b>			<b>International South</b>
4:15 pm	Birte-Julia Godejohann	A2.5.01	AlN/GaN HEMTs Grown by MBE and MOCVD—Impact of Al Distribution
4:30 pm	Haoran Li	A2.5.02	Pure N-Polar AlN in GaN/AlN/GaN Heterostructures Grown by Metal-Organic Chemical Vapor Deposition
4:45 pm	Ryousuke Kanayama	A2.5.03	Characterization of AlGaIn/GaN Heterostructure by <i>In Situ</i> X-Ray Diffraction Attached Metal Organic Vapor Phase Epitaxy
5:00 pm	Jeong-Gil Kim	A2.5.04	Growth of 10 nm-Thick AlInN/GaN Heterostructure with High Electron Mobility and Low Sheet Resistance
5:15 pm	Isra Mahaboob	A2.5.05	Development of Stretchable Geometry AlGaIn/GaN HEMTs with Selective Area Epitaxial Growth Technique
5:30 pm	Charles Eddy	A2.5.06	<i>In Situ</i> Studies of the Atomic Layer Epitaxial Growth Process for III-N Semiconductors
5:45 pm	Kazuki Komura	A2.5.07	Atomic Level C-AFM Characterization of GaN Grown under Spiral Mode
<b>C0.3: Electronic Devices III: Electronic Devices for RF &amp; Power Applications</b>			<b>Narcissus/Orange Blossom</b>
2:00 pm	Shuichi Nagai	*C0.3.01	Recent Work of GaN Devices/Circuits for RF and Power Electronics Applications
2:30 pm	Alex Guo	C0.3.02	NBTI in GaN MOSFETs—SiO <sub>2</sub> vs. SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> Gate Dielectric
2:45 pm	Jiayin Gao	C0.3.03	High Breakdown, Low Interface State PEALD Al <sub>2</sub> O <sub>3</sub> /SiO <sub>2</sub> Gate Stack for AlGaIn/GaN MOS-HEMT
3:00 pm	Syed Zaffar Haider Zaidi	C0.3.04	Effect of Surface Plasma Treatments on Hysteresis and Threshold Voltage Stability in AlGaIn/GaN Metal-Semiconductor-Insulator (MIS) HEMTs
3:15 pm	Zhibo Guo	C0.3.05	Lossless Turn-off Switching Projection of Lateral and Vertical GaN Power Field-Effect Transistors
3:30 pm	Brian Tierney	C0.3.06	Electric Field Control Using a Distributed Impedance "Field Cage" to Extend AlGaIn/GaN HEMT Operation to the Kilovolt Regime
3:45 pm	Break		
<b>C2.1: Power Devices I: Devices for Power Electronics I</b>			<b>Narcissus/Orange Blossom</b>
4:15 pm	Mario Rivas	*C2.1.01	GaN in Automotive Electronics
4:45 pm	Yuanzheng Yue	C2.1.02	GaN-on-Si Power HEMTs with Blocking Field >70V/μm
5:00 pm	Patrick Waltereit	C2.1.03	Optimization of Epitaxial Growth and Processing for High-Breakdown, Low-Leakage and Fast-Switching GaN High Voltage Transistors on Si Substrates
5:15 pm	Zhihong Liu	C2.1.04	600 V GaN MOSHEMTs Fabricated on a 200 mm-Diameter 725 μm-Thick Si(111) Substrate Using CMOS-Compatible Process
5:30 pm	Kean Lee	C2.1.05	High Temperature Performances of 600V AlGaIn/GaN and AlInN/GaN (MIS)HFETs on Silicon Substrates—A Comparative Study
5:45 pm	Georges Pavlidis	C2.1.06	AlN Filled Trenches for Thermal Improvement in Etched Back GaN-on-Si HEMTs
6:00 pm	Sheng Jiang	C2.1.07	High Voltage All GaN Integrated Cascode MISHFETs



# WEDNESDAY PROGRAM AT-A-GLANCE

\* Invited Talk

A1.3: Bulk Growth III: Bulk Growth & Late News			Azalea/Begonia
8:00 am	Rainer Niewa	*A1.3.01	Chemistry of the Ammonothermal Method for Growth of Nitrides as GaN, InN and Zn <sub>3</sub> N <sub>2</sub>
8:30 am	Saskia Schimmel	A1.3.02	GaN Solubility and Dissolution Kinetics Investigated Using Direct Insight into Ammonothermal Autoclaves by <i>In Situ</i> X-Ray Imaging
8:45 am	Boleslaw Lucznik	A1.3.03	Detailed Study of Homoepitaxial HVPE-GaN Growth in c-Direction
9:00 am	Yohei Yamaguchi	A1.3.04	Study on Reduction of H <sub>2</sub> O in OVPE Process for Improving GaN Crystallinity
9:15 am	Masayuki Imanishi	A1.3.05	Na-Flux Growth on the Tiling HVPE Wafer for the Suppression of V-Shape Valley Formation at the Coalescence Boundary
9:30 am	Yamada Takumi	A1.3.06	Evaluation of Freestanding GaN Substrates by Dissolution of Sapphire Substrates Using Li after the Na-Flux Growth
9:45 am	J. Hertrampf	A1.3.07	(LATE NEWS) Ammonothermal Synthesis and Crystal Growth of Indium Nitride
10:00 am	Break		
E0.3: Nanostructures III: Characterization of Nanostructures Including Tomography			Camellia/Dogwood
8:00 am	Rachel Oliver	E0.3.01	Electron Microscopy and Tomography of Nitride Micro- and Nano-Devices
8:15 am	Norman Sanford	E0.3.02	Laser-Assisted Atom Probe Tomography Study of InGaN and Mg:GaN Test Structures
8:30 am	Lorenzo Mancini	E0.3.03	Transition Energies and Charge Carriers Localization Study of GaN/AlN Stranski-Krastanov Quantum Dots by Atom Probe-Based Correlative Multi-Microscopy
8:45 am	Jinwan Kim	E0.3.04	High Quantum Efficiency UVC Al <sub>x</sub> Ga <sub>1-x</sub> N/Al <sub>y</sub> Ga <sub>1-y</sub> N Multiple Quantum Wells Grown on AlN Nanostructures with Polarization Free Non-Polar Facet
9:00 am	Jonas Laehnemann	E0.3.05	UV Photosensing Characteristics of Nanowire-Based GaN/AlN Superlattices
9:15 am	D. Laleyan	E0.3.06	Molecular Beam Epitaxial Growth and Characterization of B(Ga,Al)N Nanowire Heterostructures
9:30 am	Matthias Belloeil	E0.3.07	Quantum Dot-Like Behavior of Compositional Fluctuations in AlGaN Nanowires
9:45 am	Zhihua Fang	E0.3.08	Visualization and Quantitative Analysis of Axial p-n Junction on Single GaN Nanowire by Three Electron Beam Based Techniques
10:00 am	Break		
B1.4: Visible Devices IV: Visible Emitters: Alloy Disorder, Loss Mechanisms & Strain Engineering			International Center
8:00 am	Yuh-Renn Wu	*B1.4.01	Impact of Atomic Disorder in InGaN MQW LEDs
8:30 am	Axel Hoffmann	*B1.4.02	Recombination Coefficients in InGaN Quantum Well Light-Emitting Diodes
9:00 am	Tomohiko Sugiyama	B1.4.03	Performance of InGaN-Based Light Emitting Diodes under High Current Density on Low Dislocation Density Liquid Phase Grown GaN Substrates
9:15 am	Agata Bojarska	B1.4.04	Is the Electron Blocking Layer Still Needed in Modern Designs of InGaN Laser Diodes
9:30 am	David Sotta	B1.4.05	Relaxed InGaN Engineered Substrate for LED Droop Reduction
9:45 am	Francois Levy	B1.4.06	Vertical Thin Film LEDs from Island Patterned Epilayers Grown on Relaxed InGaN Engineered Substrates
10:00 am	Break		
D1.6: Materials Characterization VI: Characterization of Electronic Devices & Late News			International North
8:15 am	Matthew Laurent	D1.6.01	Physical Explanation of Richardson Constant Values Observed in J-V-T Measurements of III-N Schottky Diodes
8:30 am	Monir Rychetsky	D1.6.02	Determination of Polarization Fields in (0001) AlInN/GaN and AlGaN/GaN Heterostructures by Capacitance-Voltage-Measurements
8:45 am	Lukasz Janicki	D1.6.03	Electromodulation Spectroscopy of N-Polar GaN HEMT Structures
9:00 am	Kohei Tachi	D1.6.04	Characterization of Electrical Properties of n-Type GaN Layer Using Terahertz Time-Domain Spectroscopic Ellipsometry
9:15 am	Ye Jia	D1.6.05	Band Offset Characterization of Atomic Layer Deposited Al <sub>2</sub> O <sub>3</sub> on m-Plane GaN by X-Ray Photoelectron Spectroscopy
9:30 am	Martin Stutzmann	D1.6.06	Band Offsets at Diamond/III-Nitride Heterojunctions
9:45 am	Yumi Kisanuki	D1.6.07	(LATE NEWS) Superior Thermal Resistance of N-Polar GaN Surface over Ga-Polar GaN Surface in NH <sub>3</sub> added N <sub>2</sub> Ambient at High Temperatures above 1200 °C
10:00 am	Break		



A2.6: Epitaxial Growth VI: Molecular Beam Epitaxy of III-Nitrides			International South
8:00 am	Xinqiang Wang	*A2.6.01	Atomic Level Manipulation in Molecular Beam Epitaxy of III-Nitrides
8:30 am	Marcin Siekacz	A2.6.02	The Impact of Barrier Width on Photoluminescence Wavelength in InGaN/InGaN Short Period Superlattices Grown by Plasma Assisted MBE
8:45 am	Akhil Ajay	A2.6.03	Ge Doping of GaN beyond Mott Transition Using Plasma Assisted Molecular Beam Epitaxy
9:00 am	Evan Clinton	A2.6.04	Metal Modulated Epitaxy of High Carrier Concentration Mg Doped p-Type and Ge Doped n-Type AlGaIn
9:15 am	S.M. Islam	A2.6.05	Impact of Substrate Temperature on Magnesium Incorporation in MBE Grown Al-Rich $\text{Al}_{1-x}\text{Ga}_x\text{N}$
9:30 am	Christopher Hein	A2.6.06	Impact of Surfactant Gallium on the Morphology of III-Nitrides Grown by MBE
9:45 am	Chih-Chung Yang	A2.6.07	Combining High Hole Concentration in p-GaN and High Hole Mobility in u-GaN for High p-Type Conductivity in a p-GaN/u-GaN Alternating-Layer Nanostructure
10:00 am	Break		
C2.2: Power Devices II: Devices for Power Electronics II			Narcissus/Orange Blossom
8:00 am	Peter Moens	*C2.2.01	AlGaIn/GaN-on-Si Power Device Technology—From Simple 1D Characterization Techniques to Reliable and Current-Collapse Free Large Area Power Devices
8:30 am	Min Sun	C2.2.02	Low-Cost and High-Performance Vertical GaN Power Transistors on Bulk GaN Substrates
8:45 am	Dong Ji	C2.2.03	Demonstration of Normally off GaN Trench-CAVET for High Power Application
9:00 am	Anneli Munkholm	C2.2.04	Vertical GaN Transistors on Bulk-GaN Substrates
9:15 am	Hongtu Qian	C2.2.05	Novel GaN-Based Vertical Heterostructure Field Effect Transistor Structures Using Crystallographic KOH Etching and Channel Overgrowth
9:30 am	Georges Pavlidis	C2.2.06	Electrical and Thermal Characterization of Vertical GaN PIN Diodes
9:45 am	Hutomo Suryo Wasisto	C2.2.07	Towards Vertical GaN Power Electronics—Nanowire Arrays for Vertical Field-Effect Transistors
10:00 am	Break		
F0.4: Novel Materials & Devices IV: Boron Containing & Computational Nitrides			Poinsettia/Quince
8:15 am	Guillaume Cassabois	*F0.4.01	Indirect Excitons, Electron-Phonon Interaction and Intervalley Scattering in Hexagonal Boron Nitride
8:45 am	Xin Li	F0.4.02	Layered Hexagonal BN Thin Films Grown by MOVPE for UV Optical Applications
9:00 am	Brendan Gunning	F0.4.03	Phase Degradation in $\text{B}_x\text{Ga}_{1-x}\text{N}$ Films Grown at Low Temperature by Metalorganic Vapor Phase Epitaxy
9:15 am	Xiaohang Li	F0.4.04	100-nm Thick Single-Phase Wurtzite BAlN with B Contents up to 14.4% Grown by MOCVD
9:30 am	Sergei Novikov	F0.4.05	High-Temperature Molecular Beam Epitaxy of Boron-Nitride Layers
9:45 am	Wenhao Sun	F0.4.06	Computational Discovery of Novel Stable and Metastable Nitride Semiconductors
10:00 am	Break		

## Upcoming Meetings of Interest to the IWN Community



**2016 MRS Fall Meeting & Exhibit**  
Boston, Massachusetts  
November 27–December 2, 2016



**59th Electronic Materials Conference (EMC)**  
South Bend, Indiana  
June 28–30, 2017



**2017 MRS Spring Meeting & Exhibit**  
Phoenix, Arizona  
April 17–21, 2017



**International Conference on Silicon Carbide and Related Materials**  
Washington, DC  
September 17–22, 2017



**75th Device Research Conference (DRC)**  
South Bend, Indiana  
June 25–28, 2017



**12th International Conference on Nitride Semiconductors (ICNS)**  
Strasbourg, France  
July 24–28, 2017



# WEDNESDAY POSTER SESSION

## Poster Authors Set-Up

7:30 am – 10:00 am, Grand Ballroom

## General Viewing

10:00 am – 11:30 am, Wednesday, Grand Ballroom  
Authors should stand with their posters.

## Tear Down

Posters not removed by 11:00 am, Thursday will be discarded.

ABSTRACT	PRESENTER	TITLE
PS2.01	Jinglin Zhan	Effects of Strain & Etching Damages in Micron Light Emitting Diodes on the Distinguish Performance under High Injection Level
PS2.02	Carlo De Santi	Investigation of the Thermal Droop in InGaN-Layers & Blue LEDs
PS2.03	Daesung Kang	Improvement of Output Power of Vertical InGaN/GaN-Based Light-Emitting Diodes by Using Patterned SiO <sub>2</sub> Lens Sapphire Substrate
PS2.04	Manish Mathew	Effect of Lateral Hole Injection on the Efficiency Droop of InGaN/GaN Multiple Quantum Well Blue Light-Emitting Diodes
PS2.05	Margaret Hopkins	Measurement & Evaluation of the Effect of Changing the Threading Defect Density on Efficiency Droop in InGaN/GaN LEDs
PS2.06	Tongxing Yan	Experimentally Study Electron Spillover from the Quantum Wells into p-Side GaN & Its Effect on the Efficiency Droop in InGaN/GaN Blue-Light-Emitting-Diodes
PS2.07	Sun-Kyung Kim	Momentum Representation of Leaky Light for the Identification of Light Escape Routes
PS2.08	Han Xiong	Air-Voids Embedded GaN Films Laterally Overgrown on Direct Laser Drilling Bowl-Shaped Patterned Sapphire Substrates
PS2.09	Marcin Sarzynski	Multicolor Light Emitting Diode on Patterned GaN/Sapphire Template
PS2.10	Seung-Jae Lee	High-Efficiency, High-Reliability GaN-Based Light-Emitting Diodes Fabricated on V-Pit-Embedded Structures
PS2.11	Junyoung Jin	Gradually Size-Controlled Dot Contact Current Spreading Structure for High Luminance InGaN/GaN-Based LED
PS2.12	Jeeyun Lee	Enhancement of Light Extraction Efficiency in GaN-Based Blue Light-Emitting Diodes by Using Transparent p-Pad
PS2.13	Sung-Nam Lee	Study of GaN-Based Light-Emitting Diodes Using Ag Nanowires as a Transparent Conductive Electrode
PS2.14	Jumpei Yamada	Direct Growth of Multilayer Graphene as Transparent Electrode on GaN-Based Light Emitting Diode
PS2.15	Jung-Hong Min	Rational Design of Graphene-Metal Mesh Hybrid Films for High-Performance Transparent Conductive Layers
PS2.16	Yoon Jong Moon	Diffraction Analysis of High-Index-Contrast Air-Cavities Substrates for InGaN/GaN Light-Emitting Diodes
PS2.17	Yifan Chen	Enhancement of Light Emission & Recombination Rate for CdSe/ZnS Quantum Dots on Blue LED Embedded by Ag Nanoparticles
PS2.18	Seong-Ju Park	TiO <sub>2</sub> Nanotubes for High Light Extraction Efficiency of InGaN/GaN Vertical Light-Emitting Diodes
PS2.19	Hyun Jung Park	Improvement of Light Extraction Efficiency on Ultrathin Side Emitting LEDs (USE-LEDs)
PS2.20	Janghwan Han	Enhanced Optical Output Power of InGaN/GaN Multiple Quantum Wells Light-Emitting Diodes by Vertical Magnetic Fields of Co/Pt Multilayers
PS2.21	Yufeng Li	Investigation on the Resonant Interaction between Surface Plasmon & InGaN/GaN Quantum Wells
PS2.22	Arup Neogi	Enhancement of Light Emission from GaN/InGaN Quantum Wells Induced by Resonant & Off-Resonant Plasmonic Interaction with Palladium Nanoparticles
PS2.23	Zhina Gong	Polystyrene-Catalytic Indium-Tin-Oxide Nanorods Grown on Green Light Emitting Diodes for Enhancing Light Extraction
PS2.24	Hong Chen	Polarization-Dependent Emission Properties of InGaN Light-Emitting Diodes Modified by Metallic Grating
PS2.25	Seung-Young Lim	Depth Dependent Strain Analysis in GaN-Based Light Emitting Diodes Using Surface-Plasmon Enhanced Raman Spectroscopy
PS2.26	Kwang Jae Lee	Controlled Refractive Index of Nanoporous GaN Layer for High Optical Output Power of GaN-Based Flip-Chip Light-Emitting Diodes
PS2.27	Jun Hyuk Park	External Quantum Efficiency Variation on Temperature & Current Density in Red, Blue, & Deep Ultraviolet Light-Emitting Diode
PS2.28	Jun Hyuk Park	Facet-Dependent Optical Properties & Carrier Recombination Behavior of Hendeca-Facet Panchromatic Light Emitter
PS2.29	Md Saiful Alam	Influence of Indium in Barriers of Multi Quantum Wells (MQWs) with Novel InGaN Pre-Layer Emitting in Blue to Green Regime
PS2.30	Zhen Huang	Vertical Conducting Green Light-Emitting Diodes with n-InGaN Stress-Relieved Layer Grown on n-SiC Substrates
PS2.31	Juras Mickevicius	Spatial Variation of Photoluminescence in InGaN/GaN MQWs Emitting in 450-600 nm Spectral Range
PS2.32	Gaoqiang Deng	N-Polar GaN-Based Blue-Green Light-Emitting Diodes with p-AlGaIn Electron Blocking Layer
PS2.33	Christian Wetzel	The Green Gap in Biological Systems—Why Green Matters
PS2.34	Martin Vallo	In-Rich InGaN/GaN Multiple Quantum Wells in Core-Shell Nanowires for Green Emission
PS2.35	Talal Al Tahtamouni	1.54 $\mu$ m Light Emitting Devices Based on Er-Doped GaN/AlGaIn Multiple Quantum Well Structures Grown by Metal-Organic Chemical Vapor Deposition
PS2.36	Bin Liu	Fabrication & Optical Properties of Single Nanorod InGaN/GaN Light-Emitting Devices
PS2.37	Chang-Mo Kang	Fabrication of a Dual Color Display with a Vertically-Stacked Passive-Matrix Micro-LED Array Structure
PS2.38	Jochen Bruckbauer	Hybrid White Inorganic/Organic LEDs using Organic Colour Converters
PS2.39	Lungang Feng	Freestanding GaN-Based Light Emitting Diode Membranes on Y <sub>3</sub> Al <sub>5</sub> O <sub>12</sub> : Ce <sup>3+</sup> Crystal Phosphor Plate for Efficient White Light Emission
PS2.40	Yibin Zhang	Demonstration of Wafer-Level White Light Emitting Diode with 92000lm Luminous Flux
PS2.41	Modestos Athanasiou	Monolithically Integrated White Light Microdisk Laser from InGaN / GaN MQWs On Si Substrate
PS2.42	Haitao Lu	Monolithic Integration of Light-Emitting Diode & Photodetector for Self-Monitoring of Light Output
PS2.43	Seonghoon Jeong	Monolithic Heterojunction White Light Emitting Diodes



ABSTRACT	PRESENTER	TITLE
PS2.44	Li Zhang	High Brightness GaN LEDs on 200 mm Si for Si CMOS Integration
PS2.45	Zhijian Lu	The Effect of Reflection on Visible Light Communication System Using a Gallium Nitride $\mu$ LED & IEEE 802. 11ac
PS2.46	Lai Wang	V-Shaped Semipolar InGaN/GaN Multi-Quantum-Well Light-Emitting Diodes Directly Grown on C-Plane Patterned Sapphire Substrates
PS2.47	Keundong Lee	Selective Area, Metal-Organic Vapor Phase Epitaxial Growth of GaN Microstructures on Graphene Film for Transferable & Color Tunable Inorganic LEDs
PS2.48	Won-sik Choi	Characterization of InGaN LEDs on a Flexible Substrate Fabricated by a Simple Transfer Method
PS2.49	Young-Chul Sim	Fabrication of InGaN/GaN Ring Structure with High Efficiency Broad-Band Emission
PS2.50	Seyed Ehsan Hashemi	Effect of Interlayers on the Vertical Electrical Conductivity of Si-Doped AlN/GaN DBRs Grown by PA-MBE
PS2.51	Saadat Mishkat-UI-Masabih	Thermal Analysis of Flip-Chip GaN-Based VCSELs with Dielectric Distributed Bragg Reflectors
PS2.52	Camille Tardy	Comparison of the Optical Confinement between Standard & Lateral Top Contact Laser Diode
PS2.53	Yu Lim Lee	Optical Property of 375nm Near-Ultraviolet Light Emitting Diodes
PS2.54	Haiding Sun	Enhancement of Yellow Light Extraction Efficiency of $Y_2Al_5O_{12} : Ce^{3+}$ Ceramic Converters Using a 2D $TiO_2$ Hexagonal-Lattice Nano-Cylinder Photonic Crystal Layer for Light-Emitting Diodes
PS2.55	Haiding Sun	Deep Ultraviolet AlGaIn Multiple Quantum Well Graded-Index Separate-Confinement Heterostructures Grown by MBE on SiC Substrates
PS2.56	Pietro Pampili	Optimization Study of the Fabrication Steps of Deep-UV LED Emitting at 240 nm
PS2.57	Guo Dong Hao	Enhancement of Light Output Power in AlGaIn-Based Deep-Ultraviolet Light-Emitting Diodes by Uniform Current Density Electrodes
PS2.58	Hoe-Min Kwak	Graphene Oxide Mesh for a High-Performance Current Spreading Layer in Ultra-Violet Light-Emitting Diodes
PS2.59	Sang-Hyun Hong	Effect of p-GaN Spacer Layer on Optical Properties of Localized Surface Plasmon-Enhanced Near-Ultraviolet Light-Emitting Diodes with Colloidal Ag Nanoparticles
PS2.60	Byoungjun Choi	Improved Output Power of NUV AlGaIn-Based Light-Emitting Diodes by Using Silver Nanowires
PS2.61	Sung Joo Song	Improving the Output Power of Ultraviolet AlGaIn-Based Light Emitting Diode Using Ag Nanowire-Based Electrode
PS2.62	Jun-Beom Park	Enhanced Output Power of AlGaIn-Based UV LEDs Using Transparent Conductive Electrode in UV Region
PS2.63	TaeHo Lee	Glass Electrodes for Nitride-Based Ultraviolet Light-Emitting Diodes
PS2.64	Dae-Hyun Kim	Micro-Mesh Contact-Embedded p-Type Reflector for AlGaIn-Based UV Light Emitting Diode
PS2.65	Mengjun Hou	Localized Surface Plasmon Enhanced Deep-UV Emission in AlGaIn Multiple Quantum Wells
PS2.66	Hwan Kyo Kim	Improvement of Output Power of Near Ultraviolet Light-Emitting Diodes by Using ITO-Based Transparent n-Type Electrode
PS2.67	Christian Kuhn	Smooth & Uniform $Al_{0.8}Ga_{0.2}N$ /Si Superlattice Cladding Layers for Deep UV Laser Diodes
PS2.68	Pengchong Li	Enhanced Light Emission in Near-Ultraviolet Vertical-Conducting LEDs with AlGaIn/GaN Distributed Bragg Reflectors
PS2.69	Jun-Youn Won	Improved Light Output of GaN-Based Ultraviolet Light-Emitting Diode with GaN/ $SiO_2$ /Al Omnidirectional Reflector
PS2.70	Semi Oh	Self-Formed Periodic Air-Nanodisk as an Omnidirectional Reflector in III-Nitride UV Emitter
PS2.71	Wei Guo	The Influence of Strain Modulated Photonic-Crystal (PhC) on Light Extraction Efficiency Enhancement of AlGaIn Deep UV Light-Emitting-Diodes (DUV-LEDs)
PS2.72	Jong Won Lee	Preferential Outcoupling of Strong in-Plane Emission from AlGaIn Deep-Ultraviolet Light-Emitting Diodes
PS2.73	Piotr Laskowski	Verification of the GaN Diode Design Aspects Influencing the Intensity of the Electron Energy Deposition
PS2.74	Marco Jimenez-Rodriguez	Electrical Simulations of AlInN on Silicon Heterojunctions for Photovoltaic Applications
PS2.75	Yi Fang	Numerical Simulation of InGaIn-Based High Temperature Concentrator Solar Cells
PS2.76	Dong-Ju Seo	Properties of Photoelectrodes Consisting of $In_{0.1}Ga_{0.9}N$ Nanodots & GaN Nanowires on Si by PA-MBE
PS2.77	Yiming Zhao	Materials Properties Characterization & Device Simulation on a Nonuniform Al Component $Al_xGa_{1-x}N$ Metal-Semiconductor-Metal Photodetector
PS2.78	Neha Aggarwal	Fabrication of GaN Nanoflowers Based UV Photodetector
PS2.79	Swanand Solanke	Demonstration of N-Polar III-Nitride UV Detector on Non-Vicinal Sapphire
PS2.80	Pallabi Pramanik	Wavelength-Specific Ultraviolet Photodetectors Based on Lateral Transport in AlGaIn/AlGaIn MQWs Grown by Molecular Beam Epitaxy—Effect of Compositional Inhomogeneities
PS2.81	Mingzeng Peng	Enhanced On/Off Photoresponse of Flexible Self-Powered GaN Ultraviolet Photoswitch by Local Field Modulation
PS2.82	Hao Jiang	GaN/ $Al_{0.1}Ga_{0.9}N$ -Based Visible-Blind Double Heterojunction Phototransistor with a Collector-Up Structure
PS2.83	Andrzej Taube	AlGaIn/GaN High Electron Mobility Transistors on Semi-Insulating Ammono-GaN Substrates with Regrown Ohmic Contacts
PS2.84	Kohei Sugimoto	Characterization of HEMT Fabricated on HVPE-Grown GaN Templates with Various Fe Concentrations
PS2.85	Ke Wei	Short Channel Effect of AlGaIn/GaN HEMT with a Super-Lattice Barrier Layer
PS2.86	Weijun Luo	An X-Band High Power 22.5° Phase Shifter Based on GaN HEMT
PS2.87	Hady Yacoub	Single & Multi-Channel GaN-Based HFETs for RF-Switching Applications
PS2.88	Junshuai Xue	E-Mode InAlN/AlGaIn MOS-HEMT with Enhanced Breakdown Voltage
PS2.89	Pirouz Sohi	Impact of In-Rich InGaIn Back-Barrier on the Two-Dimensional Electron Gas Mobility in InAlN/GaN HEMTs



ABSTRACT	PRESENTER	TITLE
PS2.90	Konstantinos Floros	A Dual Barrier InAlN/AlGaIn/GaN HEMT on Si Substrate with Pt Based Gates
PS2.91	Subramaniam Arulkumaran	High Linearity Performance of InAlN/GaN HEMTs on Si at Elevated Temperature
PS2.92	Wardhana Sasangka	Threading Dislocation Movement in AlGaIn/GaN-on-Si High Electron Mobility Transistors under High Temperature Reverse Bias Stressing
PS2.93	Abdalla Eblabla	MMIC-Compatible Microstrip Technology for GaN-HEMTs on Low Resistivity Silicon Substrate
PS2.94	Valentin Garbe	Ohmic Ti/Al/TiN Contacts to n-GaN Fabricated by Sputter Deposition
PS2.95	Daniel Piedra	GaN Ohmic Contact Optimization for CMOS Compatible Processing
PS2.96	Avi Shriki	Non-Uniformity of Gold Free Ohmic Contacts Induced by Non-Uniformity of the AlN Spacer Layer in AlGaIn/GaN HFETs
PS2.97	Michael McCurdy	DC, RF & Transient Response of GaN RF Power Transistors to 1.8 MeV Proton & 14 MeV Oxygen Ion Irradiation
PS2.98	Zhan Gao	Effects of High-k Gate Dielectrics on the Electrical Behavior of AlInN/GaN Based Diodes & HEMTs
PS2.99	Tae-Soo Kim	Investigation of Trap Levels in SiO <sub>2</sub> /AlGaIn/GaN High-Electron-Mobility Transistor by Capacitance-Voltage Measurement with Resonant Optical Excitation
PS2.100	Kuldeep Takhar	Non-Alloyed Ohmic Contacts to AlGaIn/GaN High Electron Mobility Transistors for Better Scalability of Source Extension Region
PS2.101	Kuldeep Takhar	Performance Improvement & Better Scalability of Wet-Oxide AlGaIn/GaN High Electron Mobility Transistors
PS2.102	Ming Xiao	Degeneration & Recovery of the Two-Dimensional Electron Gas in AlGaIn(AlN)/GaN Heterostructure
PS2.103	Kazushige Horio	Similarities of Lags & Current Collapse in Field-Plate AlGaIn/GaN HEMTs with Different Types of Buffer Layers
PS2.104	Kazushige Horio	Buffer Layer's Acceptor-Density Dependence of Lags & Current Collapse in Field-Plate AlGaIn/GaN HEMTs
PS2.105	Kazushige Horio	The Role of Buffer Leakage Current in Breakdown Voltage of AlGaIn/GaN HEMTs with a High-k Passivation Layer
PS2.106	Anqi Hu	Spatial Identification of Traps in AlGaIn/GaN Heterostructures by the Combination of Lateral & Vertical Electrical Stress Measurements
PS2.107	Ray Hua Horng	Corona Discharge Treated AlGaIn/GaN High Electron Mobility Transistor
PS2.108	Ray Hua Horng	Study on Angular Correlated-Color-Temperature Uniformity of Flip-Chip White LEDs with Various Geometries Fabricated by Model Conformal Coating
PS2.109	Amit Shah	Temperature-Dependence of ICP-RIE Etching of (0001), (11-22) & (11-20) GaN in Cl <sub>2</sub> /Ar Plasma
PS2.110	Fan Yang	The Influence of Low Pressure GaN Insertion Layer on Subthreshold Characteristic in SAG AlGaIn/GaN HFET for Normally-Off Application
PS2.111	Alex Yudin	Comprehensive Electrical & Thermal TCAD Simulation of GaN HEMTs as a Device Design Tool
PS2.112	Ahmed Chakroun	Normally-Off AlGaIn/GaN MOSHEMTs Using Ultra-Thin Al <sub>0.45</sub> Ga <sub>0.55</sub> N Barrier & PECVD-SiO <sub>2</sub> as Gate Insulator
PS2.113	Kota Sugamata	Normally-Off Operation of Ion Implanted MISFET on Freestanding GaN Substrates
PS2.114	Zhili Zhang	Normally-Off AlGaIn/GaN MIS-HEMTs by Ionic Liquid Wet Etching & LPCVD-Si <sub>3</sub> N <sub>4</sub> Gate Insulator
PS2.115	Subramaniam Arulkumaran	Improved Device Isolation in AlGaIn/GaN HEMTs by Multi-Energy <sup>131</sup> Xe <sup>+</sup> Implantation
PS2.116	Zhibo Guo	Second Breakdown & Ruggedness of Lateral & Vertical GaN Power Field-Effect Transistors
PS2.117	Fung Sing Choi	Impact of Buffer Layer Structure on the Vertical Leakage Current in Nitride HEMT Devices
PS2.118	Won-Sang Park	Improvement of Off-State Performance in AlGaIn/GaN HEMT with TMAH Surface Treatment
PS2.119	Yiqiang Ni	Research on the Strain Issues of High Blocking Voltage GaN Epitaxial Material Grown on Si Substrate with AlN/GaN Superlattices Buffer
PS2.120	Dominik Jaeger	AlN-Templates on Si(111) for GaN-Power Devices
PS2.121	Liang He	The Influence of Al Composition in AlGaIn Back Barrier Layer on Leakage Current & Dynamic RON Characteristics of AlGaIn/GaN HEMTs
PS2.122	Yuya Yamaoka	Impact of Crystal Quality of AlN Nucleation Layer on the Vertical Direction Breakdown Voltage of AlGaIn/GaN High-Electron-Mobility Transistor Structures on Si
PS2.123	MyoungJin Kang	High-Performance Normally-Off Recessed SiN <sub>x</sub> /AlGaIn/GaN-on-Si HEMTs Combined Partially Recessed Gate Structures
PS2.124	Yue-ming Hsin	Comparison of Different Layouts in AlGaIn/GaN HEMTs on Si Substrates
PS2.125	Yue-ming Hsin	Performance Improvement of AlGaIn/GaN HEMTs Using p-GaN Cap Layers
PS2.126	G. S. Karthikeyan	Effect of GaN Channel Thickness on the Device Characteristics of DH-HEMT on 100 mm Si Grown by MOCVD
PS2.127	Sridhar Majety	Reduction of Interface Trap Density by Wet-Oxidation in Al <sub>2</sub> O <sub>3</sub> /AlGaIn/GaN MOS-HEMTs
PS2.128	Masamichi Akazawa	Reduction of Interface State Density at SiO <sub>2</sub> /InAlN Interface by Inserting Ultrathin Interlayers
PS2.129	Jozef Osvald	Frequency Dispersion of Al <sub>2</sub> O <sub>3</sub> /GaN/AlGaIn/GaN Heterostructures Capacitance
PS2.130	Michitaka Yoshino	High-k Dielectric Passivation for Reduction of Peak Electric Field in GaN p-n Diodes
PS2.131	Hiroshi Ohta	Process-Damage Recovered Fabrication of High Breakdown Voltage GaN p-n Junction Diodes over 4 kV
PS2.132	Fumimasa Horikiri	Fatigue Characteristics by the Current Stress in Vertical GaN p-n Junction Diodes Fabricated on Free-Standing GaN Substrate
PS2.133	Luan Li	Temperature-Dependent Electrical Transport Characteristics of a NiO/GaN Heterojunction Diode
PS2.134	Toshihide Ide	Recovery Current Characteristics of Diode Mode Operation in GaN Gate Injection Transistor Bi-Directional Switch
PS2.135	Erica Douglas	Ohmic Contacts to Al <sub>0.85</sub> Ga <sub>0.15</sub> N/Al <sub>0.7</sub> Ga <sub>0.3</sub> N Heterostructure



ABSTRACT	PRESENTER	TITLE
PS2.136	Kenji Shiojima	Effect of Surface Treatment in Au/Ni Schottky Diodes Formed on Cleaved m-Plane Surfaces of Free-Standing n-GaN Substrates
PS2.137	Kenji Shiojima	Observation of Initial Stage of Degradation in Ni/n-GaN Schottky Diodes Using Scanning Internal Photoemission Microscopy
PS2.138	Shirong Zhao	A Study of the High Temperature Lifetime of Ohmic Contacts to p-GaN by Accelerated Lifetime Tests
PS2.139	Marko Tadjer	AlGaIn/GaN HEMT Membranes for Flexible Power Electronics
PS2.140	Carina Maliakkal	Understanding the Growth Mechanism of MOVPE-Grown Ni-Catalyzed GaN Nanowires
PS2.141	Assa Aravindh Sasikala Devi	<i>Ab Initio</i> Investigations on Defect Mediated Magnetism in GaN Nanowires
PS2.142	Alexana Roshko	Observations of Inversion Domains in GaN Nanowires by Scanning Transmission Electron Microscopy
PS2.143	An Bao	Properties of GaN Nanowires with $\text{Sc}_{0.5}\text{Ga}_{1.5}\text{N}$ Insertion
PS2.144	Martin Hetzl	Luminescence Properties of Heteroepitaxial Selective Area Grown GaN Nanowires
PS2.145	Si-Young Bae	Morphological Transformation of Selectively Grown GaN Nanorods by Controlling a Dopant Flow in a Pulsed-Mode MOCVD
PS2.146	Zhihua Fang	Structural & Electrical Transport Properties of Si Doped GaN Nanowires
PS2.147	Joel Eymery	Silane Addition for the MOVPE Growth of GaN Wires—Mechanisms & Benefits
PS2.148	George Wang	Nanowires, Nanosheets, & Beyond—Geometry Controlled High Aspect Ratio Nanostructures by Top-Down Fabrication
PS2.149	Chih-Chung Yang	Internal Quantum Efficiency Enhancement of Deep-UV LED through Surface Plasmon Coupling with Al Nanostructures
PS2.150	Chih-Chung Yang	Growth of GaN Nanorod with Cross-Sectional Size Variation
PS2.151	Kyuseung Lee	Self-Assembled Growth & Structural Analysis of Uni-Directionally Inclined GaN Nanorods on Nanoimprinted m-Sapphire Using Catalyst-Free Metal-Organic Chemical Vapor Deposition
PS2.152	Julia Winnerl	Homoepitaxial Selective Area Growth of GaN Nanowires on Light Emitting Diode Structures
PS2.153	Martina Morassi	Growth & Characterization of InGaIn/GaN Nanowires
PS2.154	Necmi Biyikli	Fabrication of Long-Range Ordered III-Nitride Nanostructures on Si Substrates via Template-Assisted Atomic Layer Deposition
PS2.155	Necmi Biyikli	Temperature-Dependent Photoluminescence of Low-Temperature Plasma-Assisted ALD-Grown Ordered GaN Nanostructures on Si Substrates
PS2.156	Necmi Biyikli	Fabrication of Flexible Core/Shell Nylon/III-Nitride Nanofibers by Electrospinning & Low-Temperature Plasma-Assisted Atomic Layer Deposition for Photocatalysis & Gas Sensing Applications
PS2.157	Andreas Zeidler	Growth of Self-Assembled $\text{In}_{0.5}\text{Ga}_{1.5}\text{N}$ Nanowires on Si(111) by Plasma Assisted Molecular Beam Epitaxy for Electrochemical Applications/Photocatalysis
PS2.158	Saskia Weiszer	Structural & Electrical Characterization of $\text{In}_{0.5}\text{Ga}_{1.5}\text{N}$ Nanowires Grown on Si(111) by Molecular Beam Epitaxy
PS2.159	Jin-Kyu Yang	Optical Characteristics of Single-Crystal InGaIn Nanowires Grown via MOCVD with a Ni Catalyst
PS2.160	Elissa Roche	Controlled Composition in Indium-Rich $\text{In}_{0.5}\text{Ga}_{1.5}\text{N}$ Nanowires Grown by HVPE
PS2.161	Qiming Chen	InN/In(Ga)N Dot-in-Nanowire Heterostructures Emitting at 1.55 $\mu\text{m}$
PS2.162	Atsushi Tanaka	(LATE NEWS) Facet Distribution of Leakage Current and Carrier Concentration in m-Plane GaN Schottky Barrier Diode Fabricated with MOVPE
PS2.163	Chao Zhao	High-Performance InGaIn/GaN Quantum-Disks-in-Nanowires Light-Emitters on Metal Substrates
PS2.164	Sebastian Metzner	Nanoscope Optical & Structural Properties of Thick InGaIn Grown on GaN Microrods Investigated by Cathodoluminescence Microscopy
PS2.165	Greeshma K	InGaIn Quantum Dots by Droplet Epitaxy
PS2.166	Stefan Schulz	Electronic & Optical Properties of Nonpolar InGaIn/GaN Quantum Dots—Insights from Experiment & Theory
PS2.167	Helen Springbett	Cross-Sectional Analysis of InGaIn Quantum Dot-Like Formations at Non-Polar (11-20) Nano-Rings Grown by Modified Droplet Epitaxy
PS2.168	Tong Wang	A Comparison of Optical Properties between Non-Polar (11-20) InGaIn Quantum Dots Grown by Two Different Methods
PS2.169	Pierre-Marie Coulon	Evolution of the m-Plane Quantum Well Morphology within a GaN/InGaIn Core-Shell Structure
PS2.170	Nasir Alfaraj	Effective Surface Passivation of InGaIn/GaN Nanowires Studied by Photoluminescence & Photothermal Deflection Spectroscopy
PS2.171	Shahab Norouzian Alam	Growth & Characterisation of InGaIn/GaN QWs on Defect-Free & Uniformly Formed GaN Nanopyramids for Visible LED Applications
PS2.172	Julien Brault	UV Light Emitting Diodes Using Quantum Dot Active Regions
PS2.173	Samuel Matta	Epitaxial Growth of (Al,Ga)N Quantum Dots for Ultra-Violet LEDs
PS2.174	Valerio Piazza	Electron Beam Induced Current Investigation of GaN Nanowires Containing AlN/GaN Multiple Quantum Discs
PS2.175	Lei Jin	The Morphology Evolution of AlN Nanostructure—Influence of Growth Temperature & Growth Duration in Physical Vapor Transport
PS2.176	Dae-Woo Jeon	Low Impurities AlN Layer Regrown on AlN Nanopillar/Patterned $\text{SiO}_2$ by Hydride Vapor Phase Epitaxy
PS2.177	Kiseok Kim	Well-Aligned Various ZnO Nano-Structures for High Light-Extraction Efficiency InGaIn/GaN-Based Light Emitting Diodes
PS2.178	Rajib Mandal	Gas-Phase Synthesis of Gallium Nitride (GaN) Nanocrystals Using Non-Thermal Plasma Reactor
PS2.179	Issei Oshima	Structural & Electrical Properties of Semipolar (11-22) AlGaIn Grown on m-Plane (1-100) Sapphire Substrates
PS2.180	Kenji Iso	Dependence of GaN Growth on the Substrates with Various Surface Orientations by Tri-Halide Vapor Phase Epitaxy Using $\text{GaCl}_3$



# THURSDAY PROGRAM AT-A-GLANCE

\* Invited Talk

D2.3: Theory & Simulation III: Theory of Point Defects & Modeling of Optoelectronic Devices				Azalea/Begonia
8:00 am	Audrius Alkauskas	*D2.3.01	Point-Defect-Assisted Nonradiative Recombination in Nitride Light Emitters	
8:30 am	Kirk Lewis	D2.3.02	Predicting the Influence of Point Defects on the Optoelectronic Properties of Gallium Nitride Using a First-Principles Approach	
8:45 am	Darshana Wickramaratne	D2.3.03	Implications of Point Defects on III-Nitride Tunnel Devices	
9:00 am	Alexandros Kyrtos	D2.3.04	First Principles Study of the Formation Energies and Diffusion Barriers of Carbon and Native Defects in GaN	
9:15 am	Dimitar Alexandrov	D2.3.05	Carbon in Gallium Nitride—Resolving of a Longstanding Mystery	
9:30 am	Shigeta Sakai	D2.3.06	Enhancement of Optical Gain by Controlling Waveguide Modes in Semipolar InGaN Quantum Well Laser Diodes	
9:45 am	Break			
10:45 am	Elaheh Ahmadi	D2.3.07	Model to Explain the Behavior of 2DEG Mobility with Respect to Charge Density in N-Polar and Ga-Polar AlGaIn-GaN Heterostructures	
11:00 am	Angela Dyson	D2.3.08	The Effects of Non-Equilibrium Phonons on Transport in GaN	
11:15 am	Ajit Vallabhaneni	D2.3.09	Multiscale Modeling of Thermal and Electrical Transport in Gallium Nitride High Electron Mobility Transistor	
11:30 am	Shaloo Rakheja	D2.3.10	Challenges and Opportunities in Modeling Gallium Nitride High Electron Mobility Transistors—From Numerical Simulations to Compact Transistor Model	
11:45 am	Nadim Chowdhury	D2.3.11	GaN-Based Digital Electronics beyond '3.5 nm' Technology Node	
12:00 pm	Shahab Shervin	D2.3.12	Multifunctional Flexible III-Nitride-Based Electronic and Photonic Devices—Numerical Study on Device Performance Characteristics and New Functionality by External Bending Strain	
E0.4: Nanostructures IV: (In,Ga)N Nanostructures: Optoelectronic Devices & Properties				Camellia/Dogwood
8:00 am	Lars Samuelson	*E0.4.01	Nanowire-Based Blue-, Green- and Red-Emitting LEDs for Displays and Lighting	
8:30 am	Wolf Quitsch	E0.4.02	Interplay of Internal and Build-In Fields in GaN/InGaN Core-Shell Nanocolumn Devices	
8:45 am	Valerio Piazza	E0.4.03	Correlated Electroluminescence, Cathodoluminescence and Electron Beam Induced Current Mapping of Core-Shell Nanowire InGaN/GaN LEDs	
9:00 am	Mohsen Nami	E0.4.04	Anomalous Behavior of Temperature-Dependent Photoluminescence in GaN/InGaN Core-Shell Nanostructures	
9:15 am	Takao Oto	E0.4.05	Systematic Investigation of Influence of Nanostructural Effect on Optical Properties in InGaN Nanocolumns	
9:30 am	Angelina Vogt	E0.4.06	Recombination Dynamics in Planar and 3D InGaN/GaN LED Structures	
9:45 am	Break			
10:45 am	Yong-Hoon Cho	*E0.4.07	Group III-Nitride Nanostructures for Solid State Lighting and Quantum Photonics	
11:15 am	Serdal Okur	E0.4.08	Spectrally-Resolved Internal Quantum Efficiency and Carrier Dynamics in Semipolar (10-11) Triangular Nanostripe InGaN/GaN LEDs	
11:30 am	George Wang	E0.4.09	Fabrication and Control of III-Nitride Nanowire Lasers	
11:45 am	Pierre-Marie Coulon	E0.4.10	Optimisation of the Fabrication of InGaN/GaN Nanoring/Nanotube for Whispering Gallery Modes (WGMs) Based Laser	
12:00 pm	Ian Rousseau	E0.4.11	Far-Field Enhancement in High-Q Blue III-Nitride Photonic Crystal Nanobeam Cavities on Silicon	
12:15 pm	George Wang	E0.4.12	Facet Evolution in GaN Chemical Etching for 3D Structures and Optical Microcavities	
B1.5: Visible Devices V: Visible Light Emitters: Contacts, Tunnel Junctions & Monolithic Integration & Late News				International Center
8:00 am	Nicolas Grandjean	*B1.5.01	Transparent Conductive Nitride p-Contacts	
8:30 am	Yasuto Akatsuka	B1.5.02	Buried Tunnel Junctions Using Low Resistive GaInN Tunnel Junctions with High Si Concentrations	
8:45 am	Fatih Akyol	B1.5.03	Ultra-Low Resistance GaN/InGaN/GaN Tunnel Junctions with Indium Content < 15%	
9:00 am	Silvio Neugebauer	B1.5.04	MOVPE Growth of GaN-Based Tunnel Junctions for Lateral Current Spreading in InGaN LEDs	
9:15 am	Czeslaw Skierbiszewski	B1.5.05	Light Emitting Diodes with Tunnel Junctions for Hole Injection Grown by Plasma-Assisted MBE	
9:30 am	Yuefei Cai	B1.5.06	Voltage-Controlled Light Modulation Enabled by Monolithically Integrated HEMT-LED Device	
9:45 am	Marco Jimenez-Rodriguez	B1.5.07	(LATE NEWS) First Ultrafast Mode-Locked Fiber Laser Using InN Saturable Absorber at Telecom Wavelength	
10:00 am	Break			



B1.6: Visible Devices VI: Light Emitters: Lasers				International Center
10:45 am	Qian Sun	B1.6.01	GaN-on-Si UV LED and Blue/Violet Laser Diode	
11:00 am	Junichiro Ogimoto	B1.6.02	Design and Fabrication of Modulation-Doped GaN-Based Vertical Cavities for Blue Surface-Emitting Lasers	
11:15 am	Grzegorz Muziol	B1.6.03	Aluminum-Free Blue Laser Diodes Grown by Plasma Assisted Molecular Beam Epitaxy	
11:30 am	Cheng Zhang	B1.6.04	All-Nitride, Optically Pumped VCSELs in Blue and Near UV	
11:45 am	Ji Hye Kang	B1.6.05	Optically Pumped Distributed Feedback Lasers Based on GaN with 10 <sup>th</sup> -Order Laterally Coupled Surface Gratings	
12:00 pm	Szymon Stanczyk	B1.6.06	Opto-Electrical Properties of (Al,In)GaN Laser Diodes with Tapered Waveguide	
12:15 pm	Stephane Trebaol	B1.6.07	Impact of Mode-Hopping Noise on InGaN Edge Emitting Laser RIN Properties	
D1.7: Materials Characterization VII: Characterization of Electronic Devices				International North
8:00 am	Steven Ringel	*D1.7.01	Traps and Their Effects in High Voltage GaN/Si HEMTs and Ultra-Wide Bandgap Semiconductors	
8:30 am	Suguru Mase	D1.7.02	Analysis of Carrier Trapping and Emission in AlGaIn/GaN HEMT with Bias-Controllable Field Plate	
8:45 am	Masahiro Horita	D1.7.03	Wafer-Level Mapping of Net Donor and Deep-Level Trap Concentrations in MOVPE-Grown Homoepitaxial n-Type GaN	
9:00 am	Kevin Galiano	D1.7.04	Spatially Correlating the E <sub>c</sub> -0.57 eV Trap in GaN with Edge Dislocations	
9:15 am	Takuya Maeda	D1.7.05	Photocurrent Induced by Sub-Bandgap-Wavelength Light Absorption Due to Franz-Keldysh Effect in n-Type GaN Schottky Barrier Diode under Large Reverse Bias	
9:30 am	Tommaso Brazzini	D1.7.06	Hot Electron Electroluminescence in GaN-Based Transistors—Origin of the Emission	
9:45 am	Break			
D1.8: Materials Characterization VIII: Characterization of (Al,Ga)N				International North
10:45 am	Yoichi Kawakami	*D1.8.01	Radiative and Nonradiative Recombination Processes in AlGaIn-Based Quantum Wells	
11:15 am	Chelsea Haughn	D1.8.02	Well Width Dependence of Radiative Lifetime in Ultrathin Al-Rich AlGaIn/AlN Multiple Quantum Wells	
11:30 am	Yoichi Yamada	D1.8.03	Confinement-Enhanced Biexciton Binding Energy in AlGaIn-Based Quantum Wells	
11:45 am	Carsten Netzel	D1.8.04	Surface-Related Effects on the Temporal Change in (Al)GaN Photoluminescence Intensity	
12:00 pm	Towhidur Razzak	D1.8.05	Investigation of Deep Levels in High-Al Mole Fraction Al <sub>0.75</sub> Ga <sub>0.25</sub> N	
12:15 pm	Dorian Alden	D1.8.06	Detailed Photoluminescence Excitation Study of the 3.9 eV and 2.7 eV Defect Luminescence Bands and the Commonly Observed Deep UV Absorption at 4.7 eV	
A2.7: Epitaxial Growth VII: Epitaxial Growth of (Al,Ga)N				International South
8:00 am	Markus Weyers	*A2.7.01	Low Defect Density AlN and AlGaIn for Deep UV Emitters	
8:30 am	Mitsuaki Kaneko	A2.7.02	Strain Controls of High-Quality AlN Layers by Misfit Dislocations Introduced at Step Edges of SiC(0001) Substrates	
8:45 am	Lisheng Zhang	A2.7.03	High-Quality AlN Epitaxy on Nano-Patterned Sapphire Substrates Prepared by Nano-Imprint Lithography	
9:00 am	Hualong Wu	A2.7.04	Improved Nucleation of AlN Template Layer on Sapphire Substrate by Using TMGa Pulse Flow	
9:15 am	Daniel Koleske	A2.7.05	Low Etch Pit Density AlN on Sapphire	
9:30 am	Tinh Tran	A2.7.06	Improvement of AlN Crystal Quality on Si Substrate for Deep UV-LED Applications	
9:45 am	Break			
A1.4: Bulk Growth IV/A2.8: Epitaxial Growth VIII: Tri-Halide Vapor Epitaxy of (In,Ga)N & Doping of GaN				International South
10:45 am	Hisashi Murakami	*A1.4.01/ A2.8.01	Recent Progress in Tri-Halide Vapor Phase Epitaxy of Thick GaN and InGaN	
11:15 am	Andreas Lesnik	A1.4.02/ A2.8.02	Carbon Doping by Propane for the Compensation of n-Type GaN Layers	
11:30 am	Felix Kaess	A1.4.03/ A2.8.03	Control of Carbon in MOCVD-Grown GaN for Power Devices by Supersaturation and Fermi Level Control	
11:45 am	Anchal Agarwal	A1.4.04/ A2.8.04	Mg Blocking by GaN Grown via Low Temperature Flow Modulation Epitaxy	
12:00 pm	Andrew Klump	A1.4.05/ A2.8.05	Electrical Characteristics and Control of Compensating Point Defects for Mg-Doped GaN	
12:15 pm	Kohei Ueno	A1.4.06/ A2.8.06	High Hole Mobility p-Type GaN with Extremely Low Residual Hydrogen Concentration Prepared by Pulsed Sputtering	



C0.4: Electronic Devices IV: Quantum Devices & Sensors & Late News			Narcissus/Orange Blossom
8:00 am	Elison Matioli	*C0.4.01	Nanostructured GaN Devices—From Ballistic Transport to Superior Device Performance
8:30 am	Zhichao Yang	C0.4.02	III-Nitride Tunneling Hot Electron Transistors with Current Gain above 10
8:45 am	Sriram Krishnamoorthy	C0.4.03	Modeling and Demonstration of High Current MoS <sub>2</sub> /GaN Interband Tunnel Junctions
9:00 am	Haowen Hou	C0.4.04	A Sub-THz Broadband Detector Based on GaN HEMTs with Nano Antennas
9:15 am	Shawn Gibb	C0.4.05	Single Crystal III-N Materials for Bulk Acoustic Wave Resonator Applications
9:30 am	Onur Koksaldi	C0.4.06	(LATE NEWS) First Demonstration of N-Polar GaN HEMTs with Multiple Field Plates Exhibiting Breakdown Voltage Over 500 V
9:45 am	Saptarshi Mandal	C0.4.07	(LATE NEWS) pGaN Gate CAJET with Mg Ion-Implanted Current Blocking Layer Demonstrating a Blocking Voltage over 500V
10:00 am	Break		
10:45 am	Robert Radway	C0.4.08	Near-Junction Thermal Management of GaN-on-SiC HEMTs via Wafer Bonding
11:00 am	James Pomeroy	C0.4.09	Thermal and Mechanical Characterisation of GaN-on-Diamond Interfaces—Uniformity and Robustness
11:15 am	Gabriel Vanko	C0.4.10	High Temperature Operation of Diamond Coated AlGaIn/GaN High Electron Mobility Transistor
11:30 am	Huarui Sun	C0.4.11	Low Thermal Resistance GaN Grown on Polycrystalline Diamond
11:45 am	Kevin Bagnall	C0.4.12	Thermal Time Constants of GaN HEMTs
12:00 pm	James Pomeroy	C0.4.13	Thermal Management in GaN HEMTs—Power Switching versus RF Devices
12:15 pm	Luke Yates	C0.4.14	Investigation of the Thermal Properties of Bulk GaN and High Growth Rate MBE GaN
B3.3: Photodetectors, Photovoltaics, Intersubband Devices III/F0.5: Novel Materials & Devices V: Photodetectors & Novel Devices			Poinsettia/Quince
8:00 am	Gad Bahir	*B3.3.01/ F0.5.01	Progress in Research on III-Nitride Based Quantum Cascade Detectors
8:30 am	Lutz Geelhaar	B3.3.02/ F0.5.02	High Photocurrent of (In,Ga)N Nanowire Photoanodes Mediated by a Radial Stark Effect
8:45 am	Akira Yoshikawa	B3.3.03/ F0.5.03	Physical Property of the High Photosensitive Field Effect Transistor Type UV Photosensors with AlGaIn/AlGaIn Hetero Structure
9:00 am	Saki Ushida	B3.3.04/ F0.5.04	Temperature Dependence in AlGaIn-Based Heterostructure Field-Effect Transistor Type UV Photosensors
9:15 am	Gregory Salamo	B3.3.05/ F0.5.05	AlGaIn/GaN Micro-Hall Devices for Current Sensing
9:30 am	Bahadır Kucukgok	B3.3.06/ F0.5.06	Investigation of Thermoelectric Properties in III-Nitride Based Semiconductors
9:45 am	Break		
F0.6: Novel Materials & Devices VI: Watersplitting and Sensors			Poinsettia/Quince
10:45 am	Zetian Mi	*F0.6.01	High Efficiency Solar Fuels Generation on III-Nitride Nanostructures
11:15 am	Paula Neuderth	F0.6.02	Photocatalytic Properties of InGaIn/GaN Nanowires Functionalized with Ultrathin Oxide Films
11:30 am	Akihiro Nakamura	F0.6.03	Visible Light Responding InGaIn/AlIn/GaN Polarization Engineered Water Splitting Photocathode
11:45 am	Mohamed Ebaid	F0.6.04	Realization of Robust Photoelectrochemical Water Splitting System with Enhanced Conversion Efficiency Using 1.65 eV InGaIn Nanowires on Bulk-Metal Substrates
12:00 pm	Hua Zong	F0.6.05	GaN Sub-MicronRod Ultrahigh Sensitivity Mechanical Sensor
12:15 pm	Joel Eymery	F0.6.06	Flexible Capacitive Piezoelectric Sensors Based on GaN Wires—Physics and Realization
B2.4: UV Devices IV: UV Emitters			Azalea/Begonia
2:00 pm	Alexander Franke	B2.4.01	AlGaIn DBR and Microcavities for Deep UV Vertical Emitting Laser
2:15 pm	Theeradetch Detchprohm	B2.4.02	Sub 250nm Deep-UV AlGaIn/AlN Distributed Bragg Reflectors Grown by Metalorganic Chemical Vapor Deposition
2:30 pm	Masafumi Jo	B2.4.03	Design of p-AlGaIn Layers for Efficient Carrier Injection in Deep Ultraviolet Light-Emitting Diodes
2:45 pm	Luca Sulmoni	B2.4.04	Graphene-Based p-Electrodes for Deep UV Light Emitting Diodes
3:00 pm	Toshiki Yasuda	B2.4.05	Hole Accumulations to Polarization Charges in Relaxed AlGaIn Heterostructures with High AlN Mole Fractions
3:15 pm	Biplab Sarkar	B2.4.06	Cluster Contact Behavior in p-GaN Grown on Sapphire and AlN Substrate
3:30 pm	Noriaki Nagata	B2.4.07	Low Resistivity Ohmic Contact V-Based Electrode Contributed by Using Thin SiN <sub>x</sub> Intermediate Layer for High AlN Molar Fraction n-Type AlGaIn
3:45 pm	Break		



A2.10: Epitaxial Growth X: Growth of UV Devices & Thick AlN & GaN Films				Azalea/Begonia
4:15 pm	Yu-Han Liang	A2.10.01	Progress in AlGaN-Based Ultraviolet Light-Emitting Diodes Made from Films Synthesized by the Liquid-Metal-Enabled Growth Mode of Molecular Beam Epitaxy	
4:30 pm	Feng Wu	A2.10.02	Significant Internal Quantum Efficiency Enhancement of GaN/AlGaN Multiple Quantum Wells Emitting at ~350 nm	
4:45 pm	Jicai Zhang	A2.10.03	2 inch AlN/Sapphire Template Grown by HVPE	
5:00 pm	Chia-Hung Lin	A2.10.04	Effect of AlN Buffer Layer Thickness on Crystallinity and Surface Morphology of 10-μm-Thick a-Plane AlN Films Grown on r-Plane Sapphire Substrates	
5:15 pm	Masayoshi Adachi	A2.10.05	Fabrication of a-Plane AlN on r-Plane Sapphire Substrate by Sapphire Nitridation and Ga-Al Liquid Phase Epitaxy	
5:30 pm	Tohoru Matsubara	A2.10.06	Visualization of Dislocation Behavior in HVPE-Grown GaN Using Facet Controlling Technique	
E0.5: Nanostructures V: Nanostructures for Electronic Applications				Camellia/Dogwood
2:00 pm	Ki-Sik Im	E0.5.01	First Demonstration of Top-Down GaN Nanowire Gate-All-Around FET	
2:15 pm	Sameer Joglekar	E0.5.02	Transport Properties of Nano-Ribbon AlGaN/GaN Devices—Impact of Sidewall Roughness	
2:30 pm	Dong-Hyeok Son	E0.5.03	Suspended Nanowire GaN Junctionless FET Fabricated by Top-Down Approach	
2:45 pm	Giovanni Santoruvo	E0.5.04	Room Temperature Ballistic Devices for High Frequency Harmonic Generation	
3:00 pm	Jana Hartmann	E0.5.05	High Aspect Ratio 3D GaN Fins with Nonpolar a-Plane Sidewalls Grown by Metalorganic Vapor Phase Epitaxy	
3:15 pm	Ludwig Greif	E0.5.06	Energy Transfer Processes in GaN Quantum Wires	
3:30 pm	Thierry Guillet	E0.5.07	Transport of Indirect Excitons in GaN Quantum Wells	
3:45 pm	Break			
E0.6: Nanostructures VI: III-N Quantum Dots				Camellia/Dogwood
4:15 pm	Tong Wang	E0.6.01	Linearly Polarized Single Photon Emission at 220 K from a Non-Polar (11-20) InGaIn/GaN Quantum Dot	
4:30 pm	Ping Wang	E0.6.02	Single Photon Emission from Site-Controlled In(Ga)N/GaN Monolayers Quantum Dot	
4:45 pm	Houssaine Machhadani	E0.6.03	InGaIn Pyramidal Quantum Dots as Source of Single Photons Device	
5:00 pm	Tim Puchtler	E0.6.04	Polarized Single-Photon Emission from m-Plane InGaIn Quantum Dots	
5:15 pm	Sarah Blumenthal	E0.6.05	Stacked Self-Assembled Cubic GaN Quantum Dots Grown by Molecular Beam Epitaxy	
5:30 pm	Songrui Zhao	E0.6.06	Molecular Beam Epitaxial Growth and Characterization of AlGaN Single Monolayer Dot-in-Nanowire Heterostructures	
5:45 pm	Benjamin Leung	E0.6.07	InGaIn Quantum Dots by Quantum Size Controlled Photoelectrochemical Etching	
B1.7: Visible Devices VII: Light Emitters & their Degradation				International Center
2:00 pm	Anna Kafar	B1.7.01	Nitride Superluminescent Diodes with Broadband Emission Spectra Realized by Step-Like Indium Content Profile	
2:15 pm	Seung-Hyuk Lim	B1.7.02	Fabrication and Characterization of GaN Based White Light-Emitting Diode without Phosphor	
2:30 pm	Krzysztof Gibasiewicz	B1.7.03	Practical Method of Fabrication of High Quality Micrometer Size InGaIn Light Emitting Diode	
2:45 pm	Michael Kunzer	B1.7.04	Defect Repair of GaN-Based LEDs by Ultraviolet Laser Processing	
3:00 pm	Ewa Grzanka	B1.7.05	Changes of Indium Distribution within the InGaIn MQWs in LED and LD Structures just before Their Decomposition	
3:15 pm	Carlo De Santi	B1.7.06	Time-Dependent Breakdown in GaN-Based LEDs—Description and Physical Origin	
3:30 pm	Agata Bojarska	B1.7.07	(LATE NEWS) Factors Influencing InGaIn Laser Diodes Degradation	
3:45 pm	Break			
D1.10: Materials Characterization X: Characterization of Low Dimensional Nitrides & Defects				International Center
4:15 pm	Alexey Kavokin	*D1.10.01	Light-Matter Coupling Phenomena in Low-Dimensional Nitride-Semiconductors	
4:45 pm	Akira Sakai	*D1.10.02	Three-Dimensional Reciprocal Space Mapping Analysis for Localized Structures and Defects in Nitride Semiconductor Materials	
5:15 pm	Ines Trenkmann	D1.10.03	Birefringence in GaN Epitaxial Layers and GaN Microrods	
5:30 pm	Akira Uedono	D1.10.04	Vacancy-Type Defects in Metal Deposited GaN Probed Using a Monoenergetic Positron Beam	
5:45 pm	Michael Reshchikov	D1.10.05	Fine Structure of the Yellow Luminescence Band in GaN	
6:00 pm	Felix Kaess	D1.10.06	Experimental Analysis of Defect Quasi Fermi Level Control in MOCVD-Grown GaN and AlGaN	



D1.9: Materials Characterization IX: Characterization of Optical Processes in (In,Ga)N				International North
2:00 pm	Andreas Hangleiter	*D1.9.01	Efficient Formation of Free Excitons in Nitride Quantum Wells at Room Temperature—Impact on Recombination Processes and LED Droop	
2:30 pm	Felix Feix	D1.9.02	Power Law Decay of the Photoluminescence Intensity of (In,Ga)N/GaN(0001) Quantum Wells—Impact of Nonradiative Recombination and Diffusion	
2:45 pm	Gwenole Jacopin	D1.9.03	Enhancement of Auger Recombination Induced by Localization in InGaN/GaN Quantum Wells	
3:00 pm	Mariia Anikeeva	D1.9.04	Recombination Processes and Influence of Carrier Localization on their Optical Properties in (In,Ga)N/GaN Short Period Superlattices	
3:15 pm	Tadeusz Suski	D1.9.05	Searching for Indirect Excitons in Coupled Double InGaN/GaN Quantum Wells	
3:30 pm	Yoshihiro Ishitani	D1.9.06	Exciton Dynamics and Stability of GaN in Non-Thermal Equilibrium State by the Analysis Taking into Account the Higher-Order Exciton States	
3:45 pm	Break			
D1.11: Materials Characterization XI: Wear of Nitride Materials & Properties of GaN Based Structures & Late News				International North
4:15 pm	Guosong Zeng	D1.11.01	Investigation of Ultralow Wear of III-Nitride Materials	
4:30 pm	Norihiko Kamata	D1.11.02	ICP-Etching Induced Defects in GaN and its Recovery Revealed by Two-Wavelength Excited Photoluminescence	
4:45 pm	Andrea Winnerl	D1.11.03	Electrochemical Characterization of Surface States at the GaN/Electrolyte Interface	
5:00 pm	Modestos Athanasiou	D1.11.04	Enhanced Forster Energy Transfer in Hybrid Organic/III-Nitride Grating Structures	
5:15 pm	Tomohiro Inaba	D1.11.05	Quantitative Analysis on Energy Transfer Process for Eu Luminescent Centers in Eu-Doped GaN	
5:30 pm	Siddha Pimpurkar	D1.11.06	(LATE NEWS) Sub-Bandgap Optical Absorption of Bulk GaN Crystals	
5:45 pm	Naoki Sawada	D1.11.07	(LATE NEWS) Si-Donor Ionization Energy and Compensating Effect in MOVPE-Grown Homoepitaxial n-Type GaN with Various Doping Concentrations	
A2.9: Epitaxial Growth IX: Epitaxial Growth of N-Polar Nitrides & GaN-on-Si				International South
2:00 pm	Stefan Mohn	A2.9.01	Role of Low Temperature Buffers for Polarity Control of III-Nitrides on Sapphire	
2:15 pm	Cory Lund	A2.9.02	Growth of High Quality N-Polar In <sub>x</sub> Ga <sub>1-x</sub> N Films with x > 0.4 for Tunnel Junction Devices	
2:30 pm	Tomoyuki Tanikawa	A2.9.03	Control of Impurity Concentration of Undoped N-Polar (000-1) GaN Grown by Metalorganic Vapor Phase Epitaxy	
2:45 pm	Ryohei Nonoda	A2.9.04	Improvement of Homogeneity in N-Polar (000-1) InGaN Grown by Metalorganic Vapor Phase Epitaxy	
3:00 pm	Gautier Laval	A2.9.05	Selective Area Growth of High Crystalline Quality N-Polar GaN Pseudo-Substrates on Si (100)	
3:15 pm	Mikhail Rudinsky	A2.9.06	Control of Stress, Bow, and Dislocation Density in (0001) AlN/GaN Superlattices Grown on Silicon	
3:30 pm	Hojun Lee	A2.9.07	Study of AlN Nucleation by Directional Sputtering for Growth of Orientation-Controlled GaN on Si(001) Substrates	
3:45 pm	Break			
F0.8: Novel Materials & Devices VIII/A2.11: Epitaxial Growth XI: Growth of Novel Materials & Devices				International South
4:15 pm	David Meyer	*F0.8.01/ A2.11.01	Epitaxial Conductors—Transition Metal Nitride Integration with III-N Materials	
4:45 pm	Lu Han	F0.8.02/ A2.11.02	Electron-Photon and Electron-LO Phonon Intersubband Scattering Rates in Lattice-Matched GaN-ZnGeN <sub>2</sub> Coupled Quantum Wells	
5:00 pm	Andriy Zakutayev	F0.8.03/ A2.11.03	Group-IV Nitride Compounds and Alloys for Solar Energy Conversion Applications	
5:15 pm	Matthew Hardy	F0.8.04/ A2.11.04	Epitaxial ScAlN Grown by Plasma-Assisted Molecular Beam Epitaxy on GaN and SiC Substrates	
5:30 pm	Mohammad Nazari	F0.8.05/ A2.11.05	Morphology Study of Diamond Grown on GaN Using Near-Ultraviolet Micro-Raman Technique	
5:45 pm	Neeraj Nepal	F0.8.06/ A2.11.06	Structural and Raman Properties of Molecular Beam Epitaxy Grown $\beta$ -Nb <sub>2</sub> N Films and AlN/ $\beta$ -Nb <sub>2</sub> N Heterojunctions on 6H-SiC Substrates	
C2.3: Power Devices III: Devices for Power Electronics III				Narcissus/Orange Blossom
2:00 pm	Sen Huang	*C2.3.01	Enhancement-Mode GaN-Based MIS-HEMTs for Dynamic Voltage Power Supply Applications	
2:30 pm	Gaudenzio Meneghesso	C2.3.02	Normally-off HEMTs with p-GaN Gate—Stability and Lifetime Extrapolation	
2:45 pm	Ho-Young Cha	C2.3.03	Normally-off AlGaIn/GaN-on-Si Metal-Oxide-Semiconductor-Heterojunction Field-Effect Transistor with an Integrated Single Stage GaN Inverter as a Gate Driver	
3:00 pm	Naoki Kato	C2.3.04	An AlGaIn/GaN Field Effect Diode with a High Turn-On Voltage Controllability	
3:15 pm	Yuhao Zhang	C2.3.05	High-Performance Quasi- and Fully-Vertical GaN-on-Si pn Diodes	
3:30 pm	Xu Zhang	C2.3.06	Switching Performance of Quasi-Vertical GaN-Based p-i-n Diodes on Si	
3:45 pm	Break			



C0.5: Electronic Devices V: Doping, Implantation & Isolation & Late News			Narcissus/Orange Blossom
4:15 pm	Boris Feigelson	*C0.5.01	Advances and Challenges in p-Type Doping of GaN by Implantation and Novel Annealing Technique
4:45 pm	Tetsuo Narita	C0.5.02	P-Type Conduction by Mg-Ion Implantation for N-Face GaN
5:00 pm	Shinya Takashima	C0.5.03	Mg Doping Dependence of GaN MOSFETs Fabricated on Homoepitaxial p-GaN Layers
5:15 pm	Kexiong Zhang	C0.5.04	InGaN/GaN Heterostructure P-Channel Metal-Oxide-Semiconductor Field Effect Transistor by Using Polarization-Induced Two-Dimensional Hole Gas
5:30 pm	Aki Sasakura	C0.5.05	Characterization of GaN-Based Trench-Gate MOSFET with Implanted Source Region
5:45 pm	Martin Eickelkamp	C0.5.06	Growth and Characterization of Buffer Structures for AlGaIn/GaN-Based Heterostructure Field Effect Transistors
6:00 pm	Kazuki Nomoto	C0.5.07	(LATE NEWS) Vertical GaN Junction Field Effect Transistors with Regrown GaN Channels

F0.7: Novel Materials & Devices VII: Novel Sensing Devices & Magnetism			Poinsettia/Quince
2:00 pm	Martin Eickhoff	*F0.7.01	Optochemical Sensing Devices Based on Group III-Nitride Nanowires
2:30 pm	Dominik Heinz	F0.7.02	Sensing the Iron-Load of Ferritin Biomolecules Using GaInN Quantum Wells as Optochemical Transducers
2:45 pm	Sara Lippert	F0.7.03	InGaIn/GaN Nanowire Heterostructures as Multifunctional Optical Biosensors—Selective Detection of Biochemical Species and Local Sensing of pH Changes in Cells
3:00 pm	Maciej Sawicki	F0.7.04	Stretching Magnetism with an Electric Field in a Nitride Semiconductor
3:15 pm	Shengxiang Jiang	F0.7.05	Enhanced Ferromagnetism in Nanoscale GaN:Mn Wires Grown on GaN Ridges
3:30 pm	Katarzyna Gas	F0.7.06	Impact of Mg Doped Cladding Layers on Ferromagnetism of (Ga,Mn)N Thin Films
3:45 pm	Break		

B3.4: Photodetectors, Photovoltaics, Intersubband Devices IV: Characterization of Intersubband Structures & Late News			Poinsettia/Quince
4:15 pm	Houqiang Fu	B3.4.01	Crystal Orientation Dependent Intersubband Transition in Semipolar AlGaIn/GaN Quantum Well for Optoelectronic Applications
4:30 pm	Caroline Lim	B3.4.02	Doping of Nonpolar M-Plane GaN/AlGaIn Multi-Quantum-Wells with Intersubband Transitions in the THz Range—Effect of Si and Ge Doping
4:45 pm	Oana Malis	B3.4.03	Dramatic Enhancement of Near-Infrared Intersubband Absorption in c-Plane AlInN/GaN Superlattices
5:00 pm	Xuanqi Huang	B3.4.04	(LATE NEWS) Fabrication and Characterization of Non-Polar and Semipolar InGaIn/GaN Multi-Quantum Well (MQW) Solar Cells
5:15 pm	P. Holtz	B3.4.05	(LATE NEWS) Single Polarized-Photons Emitted from Elongated III-Nitride Pyramidal Quantum Dots
5:30 pm	Zarco Gacovic	B3.4.06	(LATE NEWS) Nonpolar, Semipolar and Polar III-Nitride Dot-in-a-Wire Sources of Linearly Polarized Single Photons

Rump Sessions		
6:15 pm	International North	Rump Session I: Is There a Suitable Future for Ordered Nanostructures as Real Devices?
6:15 pm	International Center	Rump Session II: Do We Really Need Better LEDs?
6:15 pm	International South	Rump Session III: The Future of Wide-Bandgap Electronics

## PROGRAM AT-A-GLANCE FRIDAY

\* Invited Talk

PL.2: Plenary Session II			Grand Ballroom
9:00 am	Jy Bhardwaj	*PL.2.01	Progress in LED Technology for Solid-State Lighting
9:45 am	Takashi Egawa	*PL.2.02	Heteroepitaxial Growth of GaN-on-Si and Power Device Applications
10:30 am	Break		
11:00 am	Closing Remarks		



# LATE NEWS

## MONDAY

PS1: Poster Session I		
ABSTRACT	PRESENTER	TITLE
PS1.88	Matthew Rosenberger	Atomic Force Microscope Measurements of Thermomechanical and Inverse-Piezoelectric Strain in AlGaIn/GaN High Electron Mobility Transistors

## TUESDAY

Oral Program			
C1.1: RF/mm Wave Devices I: Electronic Devices for RF Applications			
10:00 am	Wenwen Li	C1.1.06	Design and Fabrication of Self-Aligned GaN Static Induction Transistors
D1.4: Materials Characterization IV: Atomic Structure & Dislocation Effects			
3:30 pm	Anna Kafar	D1.4.06	Spontaneous and Stimulated Emission in InGaIn Edge Emitters and their Competition with Auger Processes
B2.3: UV Devices III: UV Lasers & Lasing			
6:00 pm	Burhan SaifAddin	B2.3.07	Epi-Transfer Technology for High EQE UV LEDs Grown on SiC

## WEDNESDAY

Oral Program			
A1.3: Bulk Growth III: Bulk Growth & Late News			
9:45 am	J. Hertrampf	A1.3.07	Ammonothermal Synthesis and Crystal Growth of Indium Nitride
D1.6: Materials Characterization VI: Characterization of Electronic Devices			
9:45 am	Yumi Kisanuki	D1.6.07	Superior Thermal Resistance of N-Polar GaN Surface over Ga-Polar GaN Surface in NH <sub>3</sub> added N <sub>2</sub> Ambient at High Temperatures above 1200 °C
PS2: Poster Session II			
ABSTRACT	PRESENTER	TITLE	
PS2.162	Atsushi Tanaka	Facet Distribution of Leakage Current and Carrier Concentration in m-Plane GaN Schottky Barrier Diode Fabricated with MOVPE	

## THURSDAY

Oral Program			
C0.4: Electronic Devices IV: Quantum Devices & Sensors			
9:30 am	Onur Koksaldi	C0.4.06	First Demonstration of N-Polar GaN HEMTs with Multiple Field Plates Exhibiting Breakdown Voltage Over 500 V
9:45 am	Saptarshi Mandal	C0.4.07	pGaN Gate CAVET with Mg Ion-Implanted Current Blocking Layer Demonstrating a Blocking Voltage over 500V
B1.5: Visible Devices V: Visible Light Emitters: Contacts, Tunnel Junctions, & Monolithic Integration			
9:45 am	Marco Jimenez-Rodriguez	B1.5.07	First Ultrafast Mode-Locked Fiber Laser Using InN Saturable Absorber at Telecom Wavelength
B1.7: Visible Devices VII: Light Emitters & their Degradation			
3:30 pm	Agata Bojarska	B1.7.07	Factors Influencing InGaIn Laser Diodes Degradation
B3.4: Photodetectors, Photovoltaics, Intersubband Devices IV: Characterization of Intersubband Structures			
5:00 pm	Xuanqi Huang	B3.4.04	Fabrication and Characterization of Non-Polar and Semipolar InGaIn/GaN Multi-Quantum Well (MQW) Solar Cells
5:15 pm	P. Holtz	B3.4.05	Single Polarized-Photons Emitted from Elongated III-Nitride Pyramidal Quantum Dots
5:30 pm	Zarco Gacevic	B3.4.06	Nonpolar, Semipolar and Polar III-Nitride Dot-in-a-Wire Sources of Linearly Polarized Single Photons
D1.11: Materials Characterization XI: Wear of Nitride Materials & Properties of GaN Based Structures			
5:30 pm	Siddha Pimputkar	D1.11.06	Sub-Bandgap Optical Absorption of Bulk GaN Crystals
5:45 pm	Naoki Sawada	D1.11.07	Si-Donor Ionization Energy and Compensating Effect in MOVPE-Grown Homoepitaxial n-Type GaN with Various Doping Concentrations
C0.5: Electronic Devices V: Doping, Implantation & Isolation			
6:00 pm	Kazuki Nomoto	C0.5.07	Vertical GaN Junction Field Effect Transistors with Regrown GaN Channels